

# Commercial Air Conditioning

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## SERVICE MANUAL

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*Inverter R410a 50/60HZ*

### Indoor:



### Models

YHKJXH012BAM--FX	YHKJXH018BAM--FX
YHKJXH024BAR--FX	YHKJXH028BAR--FX
YHKJXH036BAR--FX	YHKJXH048BAR--FX
YHKJXH048BAR--FX	YHKJXH060BAR--FX
YHFJXH012BAM--FX	YHFJXH018BAM--FX
YHFJXH024BAR--FX	YHFJXH028BAR--FX
YHFJXH036BAR--FX	YHFJXH048BAR--FX
YHFJXH048BAR--FX	YHFJXH060BAR--FX
YHDJXH012BAM--GX	YHDJXH018BAM--GX
YHDJXH024BAR--GX	YHEJXH024BAR--GX
YHEJXH028BAR--GX	YHEJXH036BAR--GX
YHEJXH048BAR--GX	YHEJXH048BAR--GX
YHGJXH048BAR--GX	YHGJXH048BAR--GX
YHGJXH060BAR--GX	

### Outdoor:

YHUJYH024BAR-A-X
YHUJYH028BAR-A-X
YHUJYH036BAR-A-X
YHUJYH048BAR-A-X
YHUJYH048BAS-A-X
YHUJYH060BAS-A-X

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## **1. Description of products & features**

### **1.1 Brief Introduction for T1 working condition**

Type of Conditioner	Climate type
	T1 (°C)
Cooling Only	18°C~46°C
Heat Pump	-15°C ~46°C
Electricity Heating	~46 °C

### **1.2 Operating Range of Air Conditioners**

Working temperature range				
		rated	maximum	minimum
Cooling	DB°C	27	32	18
	WB°C	19	23	14
	DB°C	35	46	10
	WB°C	24	24	—
Heating	DB°C	20	27	15
	WB°C	14.5	—	—
	DB°C	7	24	-15
	WB°C	6	18	—

### 1.3 Product features

- ❖ Super match

By integrating intelligent technology of Haier A/C group, super match air conditioner, with universal indoor and outdoor units, make more intelligent and flexible choices on purchasing, easier inventory management to every customer.

- ❖ Good for choice

Multi-choice of capacity and appearance of indoor unit according to various rooms.

- ❖ DC scroll compressor

The highly efficient scroll compressor is equipped with a “flexible Mechanism” that allows movement in the axial direction of the frame supporting the cradle scroll. This greatly reduces both leakage and friction loss, ensuring very high efficiency throughout the speed range.

- ❖ DC inverter technology

Powerful startup: Haier DC inverter system can startup and running at maximum frequency very quickly in order to reach the set temperature in the shorter time, which brings you great comfort experience.

Minimum running: Haier DC inverter system will reduce the frequency and running smoothly according to the real load after reach the set temperature. The system funning cost reduced drastically which brings you real benefit of money saving.

- ❖ Automatic control

Precise control: The temperature sensor can measure the temperature precisely with only 0.5°C tolerance, which transfers the exact requirement to the system to adjust the compressor frequency accordingly.

Once reach the set temperature, the system adjust the frequency smoothly according to the real time request and always maintain the temperature without fluctuation.

- ❖ Wider operation range

Haier DC inverter system provide much wider working range that is suitable for special cooling, heating requirement.

The Unitary Smart DC inv. outdoor unit default production with AC fan motor, DC fan motor is for optional choice with additional cost.

## 2.Specification

Model name	YORK	Unit	YHKJZH012BAM-AFX	YHKJZH018BAM-AFX
		Outdoor	YHUJYH012BAM-A-X	YHUJYH018BAM-A-X
		Indoor	YHKJXH012BAM--FX	YHKJXH018BAM--FX
Power supply		V/Ph/Hz	230/1/50	230/1/50
Rated Cooling	Capacity	kW(min~max)	3.5(0.9~4.5)	4.8(1.8~5.8)
	Input	W(min~max)	1080(280~1650)	1490(550~2000)
	Rated current	A	5	6.8
	EER	W/W	3.24	3.22
	SEER	W/W	5.1	5.1
Rated Heating	Capacity	Btu/h	12371.4	17375
	Input	W(min~max)	995(280~1650)	1580(600~2000)
	Rated current	A	4.7	6.7
	COP	W/W	3.62	3.22
	SCOP	W/W	3.64	3.4
	Heating P design(-10 C )	kW	3.4	4.8
Moisture Removal		l/h	1.6	1.8
Max. input consumption		W	1800	2000
Max. current		A	8	9.5
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		2	2
	Fin spacing	mm	1.25	1.25
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Number of circuit		4	4
Indoor fan motor	Input	W	30	62
	Output	W	11	18
	Running current	A	0.18	0.24
	Capacitor	uF	2	2
	Speed (Hi/Me/Lo)	rpm	690/520/560	795/690/550
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	620/520/450	700/620/500
Indoor noise level(Sound power level) (Hi/ Me/Lo)		dB(A)	53/49/45	55/50/47
Indoor noise level (Sound pressure level) (Hi/Me/Lo)		dB(A)	40/36/32	42/37/35
Indoor dimension	Unit (WxDxH)	mm	570×570×260	570×570×260
	Packing (WxDxH)	mm	718×680×380	718×680×380
Indoor weight	Net	kg	18.5	18.5
	Gross	kg	23	23
Panel dimension	Unit (WxDxH)	mm	700×700×60	700×700×60
	Packing (WxDxH)	mm	740×750×115	740×750×115
Panel weight	Net	kg	2.8	2.8
	Gross	kg	4.8	4.8

Model name	YORK	Unit	YHKJZH012BAM-AFX	YHKJZH018BAM-AFX
		Outdoor	YHUJYH012BAM-A-X	YHUJYH018BAM-A-X
		Indoor	YHKJXH012BAM--FX	YHKJXH018BAM--FX
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.75	1.41
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	9.52	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	793 x43.3x550	793 x26.6x462
	Number of circuit		4	3
Compressor	Type		Rotary	Rotary
	Capacity	W/h	9043.92	13992.48
	Input	W	690	1245
	Rated current(RLA)	A	2650	8.4
	Thermal protector		115	120
	Refrigerant oil	ml	370	500
Outdoor fan motor	Input	W	62	56
	Output	W	40	41
	Running current	A	0.2	0.25
	Speed	rpm	850	860
Outdoor air flow		m3/h	1900	2200
Outdoor noise level (Sound power level)		dB(A)	62	64
Outdoor noise level (Sound pressure level)		dB(A)	54	54
Outdoor dimension	Unit (WxDxH)	mm	780×245×540	810×288×688
	Packing (WxDxH)	mm	930×340×614	949×406×745
Outdoor weight	Net	kg	32	43
	Gross	kg	35	45.5
Refrigerant	Type		R410A	R410A
	Charge	g	1100	1300
Refrigerant pipe	Liquid side	mm	6.35	6.35
	Gas side	mm	9.52	12.7
	Max. refrigerant pipe length	m	15	25
	Max. difference in level	m	10	15
Operation temperature range		°C	16~30	16~30
Ambient temperature range (Cooling)		°C	18~43	18~43
Ambient temperature range (Heating)		°C	-15~24	-15~24
Application area		m <sup>2</sup>	25	35

Model name	YORK	Unit	YHKJZH024BAR-AFX	YHKJZH028BAR-AFX
		Outdoor	YHUJYH024BAR-A-X	YHUJYH028BAR-A-X
		Indoor	YHKJXH024BAR--FX	YHKJXH028BAR--FX
Power supply		V/Ph/Hz	230/1/50(60)	230/1/50(60)
Rated Cooling	Capacity	kW(min~max)	6.9(1.8~7.5)	7.8(2.0~8.7)
	Input	W(min~max)	2225(500~2600)	2590(500~3800)
	Rated current	A	9.4	10.8
	EER	W/W	3.1	3.01
	SEER	W/W	5.217391304	5.239130435
Rated Heating	Capacity	Btu/h	24885	29008
	Input	W(min~max)	2010(500~2600)	2530(500~3800)
	Rated current	A	9	11.6
	COP	W/W	3.63	3.36
	SCOP	W/W	3.6	3.4
	Heating P design(-10°C)	kW	6.5	7.8
Moisture Removal		l/h	2.5	2.8
Max. input consumption		W	2600	4200
Max. current		A	12	19
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		2	2
	Fin spacing	mm	1.3	1.3
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Number of circuit		8	8
Indoor fan motor	Input	W	140	140
	Output	W	40	40
	Running current	A	0.65	0.65
	Capacitor	uF	3	3
	Speed (Hi/Me/Lo)	rpm	710/620/520	710/620/520
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	1300/1100/870	1300/1100/870
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	59/57/52	61/59/57
Indoor noise level (Sound pressure level) (Hi/Me/Lo)		dB(A)	46/44/39	48/46/44
Indoor dimension	Unit (WxDxH)	mm	840×840×240	840×840×240
	Packing (WxDxH)	mm	930×930×330	930×930×330
Indoor weight	Net	kg	26.8	26.8
	Gross	kg	32.6	32.6
Panel dimension	Unit (WxDxH)	mm	950×950×60	950×950×60
	Packing (WxDxH)	mm	985×985×115	985×985×115
Panel weight	Net	kg	6	6
	Gross	kg	7.5	7.5

Model name	YORK	Unit	YHKJZH024BAR-AFX	YHKJZH028BAR-AFX
		Outdoor	YHUJYH024BAR-A-X	YHUJYH028BAR-A-X
		Indoor	YHKJXH024BAR--FX	YHKJXH028BAR--FX
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.65	1.7
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.94	7.94
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	840 x39.9x700	855 x38.1x792
	Number of circuit		4	6
Compressor	Type		Rotary	Rotary
	Capacity	W/h	13992.48	24333.264
	Input	W	1245	2200(60Hz)
	Rated current(RLA)	A	8.4	9.7
	Thermal protector		120	120
	Refrigerant oil	ml	500	870
Outdoor fan motor	Input	W	85	145
	Output	W	70	100
	Running current	A	0.4	0.4
	Speed	rpm	880	900
Outdoor air flow		m3/h	3000	3500
Outdoor noise level (Sound power level)		dB(A)	68	69
Outdoor noise level (Sound pressure level)		dB(A)	57	58
Outdoor dimension	Unit (WxDxH)	mm	860×308×730	948×340×840
	Packing (WxDxH)	mm	995×420×815	1040×430×1000
Outdoor weight	Net	kg	49	64
	Gross	kg	52	73
Refrigerant	Type		R410A	R410A
	Charge	g	1600	2600
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	15.88
	Max. refrigerant pipe length	m	25	30
	Max. difference in level	m	15	20
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m2	45	55

Model name	YORK	Unit	YHKJZH036BAR-AFX	YHKJZH048BAR-AFX
		Outdoor	YHUJYH036BAR-A-X	YHUJYH048BAR-A-X
		Indoor	YHKJXH036BAR--FX	YHKJXH048BAR--FX
Power supply		V/Ph/Hz	230/1/50(60)	230/1/50(60)
Rated Cooling	Capacity	kW(min~max)	9.3(2.0~10.3)	12.1(6.0~13.8)
	Input	W(min~max)	3000(500~3800)	4115(2000~6000)
	Rated current	A	12.87	18
	EER	W/W	3.097826087	2.94
	SEER	W/W	5.347826087	/
Rated Heating	Capacity	Btu/h	32030.55	43121.875
	Input	W(min~max)	2780(500~3800)	4070(2000~6000)
	Rated current	A	12.1	18
	COP	W/W	3.38	3.10
	SCOP	W/W	3.6	/
	Heating P design(-10°C)	kW	9.1	/
Moisture Removal		l/h	3	3.8
Max. input consumption		W	4500	6000
Max. current		A	20	26
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		2	2
	Fin spacing	mm	1.4	1.4
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Number of circuit		11	11
Indoor fan motor	Input	W	150	150
	Output	W	50	50
	Running current	A	0.68	0.68
	Capacitor	uF	8	8
	Speed (Hi/Me/Lo)	rpm	680/610/530	680/610/530
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	1600/1450/1300	1600/1450/1300
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	62/60/57	/
Indoor noise level (Sound pressure level) (Hi/Me/Lo)		dB(A)	49/47/44	49/47/44
Indoor dimension	Unit (WxDxH)	mm	840×840×290	840×840×290
	Packing (WxDxH)	mm	930×930×390	930×930×390
Indoor weight	Net	kg	31	31
	Gross	kg	37	37
Panel dimension	Unit (WxDxH)	mm	950×950×60	950×950×60
	Packing (WxDxH)	mm	985×985×115	985×985×115
Panel weight	Net	kg	6	6
	Gross	kg	7.5	7.5

Model name	YORK	Unit	YHKJZH036BAR-AFX	YHKJZH048BAR-AFX
		Outdoor	YHUJYH036BAR-A-X	YHUJYH048BAR-A-X
		Indoor	YHKJXH036BAR--FX	YHKJXH048BAR--FX
Outdoor coil	Number of row		3	2
	Fin spacing	mm	1.55	1.4
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.0	7.94
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	960 x39.9x792	792x38.1x995
	Number of circuit		8 in 4 out	9
Compressor	Type		Rotary	Rotary
	Capacity	W/h	24333.264	33718.464
	Input	W	2200(60Hz)	3010
	Rated current(RLA)	A	9.7	9.3
	Thermal protector		120	120
	Refrigerant oil	ml	870	870
Outdoor fan motor	Input	W	145	180
	Output	W	100	151
	Running current	A	0.4	0.8
	Speed	rpm	900	850
Outdoor air flow		m3/h	3500	4200
Outdoor noise level (Sound power level)		dB(A)	69	73
Outdoor noise level (Sound pressure level)		dB(A)	58	59
Outdoor dimension	Unit (WxDxH)	mm	948×340×840	1008×410×830
	Packing (WxDxH)	mm	1040×430×1000	1130×490×930
Outdoor weight	Net	kg	65	82
	Gross	kg	74	93
Refrigerant	Type		R410A	R410A
	Charge	g	2700	2850
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	19.05
	Max. refrigerant pipe length	m	30	50
	Max. difference in level	m	20	30
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m2	65	82

Model name	YORK	Unit	YHKJZH048BAS-AFX	YHKJZH060BAS-AFX
		Outdoor	YHUJYH048BAS-A-X	YHUJYH060BAS-A-X
		Indoor	YHKJXH048BAR--FX	YHKJXH060BAR--FX
Power supply		V/Ph/Hz	400/3/50(60)	400/3/50(60)
Rated Cooling	Capacity	kW(min~max)	12.1(6.0~13.8)	14.4(3.7~15.1)
	Input	W(min~max)	4296(2000~6000)	5124(2000~6500)
	Rated current	A	6.5	8.5
	EER	W/W	2.815217391	2.81
	SEER	W/W	/	/
Rated Heating	Capacity	Btu/h	42304.5	52507.35
	Input	W(min~max)	4102(2000~6000)	5110(2000~6500)
	Rated current	A	6.7	8.5
	COP	W/W	3.02	3.01
	SCOP	W/W	/	/
	Heating P design(-10°C)	kW	/	/
Moisture Removal		l/h	3.8	5
Max. input consumption		W	6000	6500
Max. current		A	10	10.5
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		2	2
	Fin spacing	mm	1.4	1.3
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Number of circuit		11	10
Indoor fan motor	Input	W	150	190
	Output	W	50	60
	Running current	A	0.68	1.2
	Capacitor	uF	8	4.5
	Speed (Hi/Me/Lo)	rpm	680/610/530	670/550/460
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	1600/1450/1300	1980/1750/1500
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	/	/
Indoor noise level (Sound pressure level) (Hi/Me/Lo)		dB(A)	49/47/44	49/44/42
Indoor dimension	Unit (WxDxH)	mm	840×840×290	1230×840×280
	Packing (WxDxH)	mm	930×930×390	1325×920×370
Indoor weight	Net	kg	31	38.6
	Gross	kg	37	45.7
Panel dimension	Unit (WxDxH)	mm	950×950×60	1340×950×80
	Packing (WxDxH)	mm	985×985×115	1400×995×115
Panel weight	Net	kg	6	8.4
	Gross	kg	7.5	12.7

Model name	YORK	Unit	2	2
		Outdoor	1.4	1.5
		Indoor	Hydrophilic Aluminium	Hydrophilic Aluminium
Outdoor coil	Number of row		7.94	7.94
	Fin spacing	mm	Inner Grooved copper tube	Inner Grooved copper tube
	Fin material		792x38.1x995	970x38.1x1200
	Tube outside diameter	mm	9	10
	Tube material		Rotary	Rotary
	Coil length x height x width	mm	33718.464	47710.944
	Number of circuit		3010	4270
Compressor	Type		9.3	12
	Capacity	W/h	120	120
	Input	W	870	1400
	Rated current(RLA)	A	257	120
	Thermal protector		142	100
	Refrigerant oil	ml	1.1	0.4
Outdoor fan motor	Input	W	850	930
	Output	W	4200	6500
	Running current	A	73	75
	Speed	rpm	59	60
Outdoor air flow		m3/h	1008x410x830	948x340x1250
Outdoor noise level (Sound power level)		dB(A)	1130x490x930	1095x410x1400
Outdoor noise level (Sound pressure level)		dB(A)	82	96
Outdoor dimension	Unit (WxDxH)	mm	93	106
	Packing (WxDxH)	mm	R410A	R410A
Outdoor weight	Net	kg	2850	3300
	Gross	kg	9.52	9.52
Refrigerant	Type		19.05	19.05
	Charge	g	50	50
Refrigerant pipe	Liquid side	mm	30	30
	Gas side	mm	16□30	16□30
	Max. refrigerant pipe length	m	-10□46	-10□46
	Max. difference in level	m	-15□24	-15□24
Operation temperature range		°C	82	100
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m2	65	82

model	YORK	Unit	YHFJZH012BAM-AFX	YHFJZH018BAM-AFX
		Outdoor	YHUJYH012BAM-A-X	YHUJYH018BAM-A-X
		Indoor	YHFJXH012BAM--FX	YHFJXH018BAM--FX
Power supply		V/Ph/Hz	230/1/50	230/1/50
Rated Cooling	Capacity	Btu/h	12286	17064
	Capacity	kW(min ~ max)	3.6(0.9 ~ 4.5)	5.0(1.7 ~ 5.3)
	Input	W(min ~ max)	1118(280 ~ 1650)	1500(550 ~ 2000)
	Rated current	A	5	6.8
	EER	W/W	3.22	3.33
	SEER	W/W	5.3	5.6
Rated Heating	Capacity	Btu/h	13992	19111
	Capacity	kW(min ~ max)	4.1(1 ~ 4.8)	5.6(1.8 ~ 6.0)
	Input	W(min ~ max)	1100(280 ~ 1650)	1509(600 ~ 2000)
	Rated current	A	4.9	6.5
	COP	W/W	3.73	3.71
	SCOP	W/W	3.8	3.6
Heating P design(-10°C )		kW	3.4	5
Moisture Removal		l/h	1.6	1.8
Max. input consumption		W	1800	2000
Max. current		A	8.0	9.5
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		3	3
	Fin spacing	mm	1.5	1.5
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	797x39.9x252	797x39.9x252
Number of circuit			4	4
Indoor fan motor	Input	W	79	96
	Output	W	28	55
	Running current	A	0.32	0.55
	Capacitor	uF	2	3
	Speed (Hi/Me/Lo)	rpm	1100/1025/825	1220/1190/1050
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	650/550/450	800/720/650
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	54/50/46	57/54/49
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	41/37/33	44/41/36
Indoor dimension	Unit (WxDxH)	mm	990×199×655	990×199×655
	Packing (WxDxH)	mm	1150×300×750	1150×300×750
Indoor weight	Net	kg	26.3	28.3
	Gross	kg	32.3	34.3
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.75	1.41
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	9.52	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	793 x43.3x550	793 x26.6x462
	Number of circuit		4	3
Compressor	Type		Rotary	Rotary
	Capacity	W/h	9043.92	13992.48
	Input	W	690	1245
	Rated current(RLA)	A	2650	8.4
	Thermal protector		115	120
	Refrigerant oil	ml	370	500

model	YORK	Unit	YHFJZH012BAM-AFX	YHFJZH018BAM-AFX
		Outdoor	YHUJYH012BAM-A-X	YHUJYH018BAM-A-X
		Indoor	YHFJXH012BAM--FX	YHFJXH018BAM--FX
Outdoor fan motor	Input	W	62	56
	Output	W	40	41
	Running current	A	0.2	0.25
	Speed	rpm	850	860
Outdoor air flow		m3/h	1900	2200
Outdoor noise level (Sound power level)		dB(A)	62	64
Outdoor noise level (Sound pressure level)		dB(A)	54	54
Outdoor dimension	Unit (WxDxH)	mm	780×245×540	810×288×688
	Packing (WxDxH)	mm	930×340×614	949×406×745
Outdoor weight	Net	kg	32	43
	Gross	kg	35	45.5
Refrigerant	Type		R410A	R410A
	Charge	g	1100	1300
Refrigerant pipe	Liquid side	mm	6.35	6.35
	Gas side	mm	9.52	12.7
	Max. refrigerant pipe length	m	15	25
	Max. difference in level	m	10	15
Operation temperature range		°C	16 ~ 30	16 ~ 30
Ambient temperature range (Cooling)		°C	18 ~ 43	18 ~ 43
Ambient temperature range (Heating)		°C	-15 ~ 24	-15 ~ 24
Application area		m <sup>2</sup>	24	35

model	YORK	Unit	YHFJZH024BAR-AFX	YHFJZH028BAR-AFX
		Outdoor	YHUJYH024BAR-A-X	YHUJYH028BAR-A-X
		Indoor	YHFJXH024BAR--FX	YHFJXH028BAR--FX
Power supply		V/Ph/Hz	230/1/50(60)	230/1/50(60)
Rated Cooling	Capacity	Btu/h	21842	26620
	Capacity	kW(min ~ max)	6.4(1.8 ~ 6.7)	7.8(1.9 ~ 9.2)
	Input	W(min ~ max)	2216(500 ~ 2600)	2475(500 ~ 2600)
	Rated current	A	9.5	10.2
	EER	W/W	2.89	3.15
	SEER	W/W	5.2	5.7
Rated Heating	Capacity	Btu/h	23890	30751
	Capacity	kW(min ~ max)	7.0(2.3 ~ 7.3)	9.0(2.0 ~ 9.6)
	Input	W(min ~ max)	2140(500 ~ 2600)	2480500 ~ 2600)
	Rated current	A	9.5	10.2
	COP	W/W	3.27	3.63
	SCOP	W/W	3.6	3.8
Heating P design(-10°C )		kW	6.5	8
Moisture Removal		l/h	2.0	2.6
Max. input consumption		W	2600	4200
Max. current		A	12.0	19.0
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		3	3
	Fin spacing	mm	1.5	1.3
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	797x39.9x252	1070x39.9x252
Number of circuit			4	6
Indoor fan motor	Input	W	96	145
	Output	W	55	70
	Running current	A	0.55	0.82
	Capacitor	uF	3	5
	Speed (Hi/Me/Lo)	rpm	1220/1190/1050	1145/1092/956
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	850/800/720	1630/1537/1375
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	57/54/49	62/58/46
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	44/41/36	49/45/43
Indoor dimension	Unit (WxDxH)	mm	990×199×655	1298×240×700
	Packing (WxDxH)	mm	1150×300×750	1500×315×790
Indoor weight	Net	kg	28.3	37
	Gross	kg	34.3	47
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.65	1.7
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.94	7.94
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	840 x39.9x700	855 x38.1x792
	Number of circuit		4	6
Compressor	Type		Rotary	Rotary
	Capacity	W/h	13992.48	24333
	Input	W	1245	2200(60Hz)
	Rated current(RLA)	A	8.4	9.7
	Thermal protector		120	120
	Refrigerant oil	ml	500	870

model	YORK	Unit	YHFJZH024BAR-AFX	YHFJZH028BAR-AFX
		Outdoor	YHUJYH024BAR-A-X	YHUJYH028BAR-A-X
		Indoor	YHFJXH024BAR--FX	YHFJXH028BAR--FX
Outdoor fan motor	Input	W	85	145
	Output	W	70	100
	Running current	A	0.4	0.4
	Speed	rpm	880	900
Outdoor air flow		m3/h	3000	3500
Outdoor noise level (Sound power level)		dB(A)	68	69
Outdoor noise level (Sound pressure level)		dB(A)	57	58
Outdoor dimension	Unit (WxDxH)	mm	860×308×730	948×340×840
	Packing (WxDxH)	mm	995×420×815	1040×430×1000
Outdoor weight	Net	kg	49	64
	Gross	kg	52	73
Refrigerant	Type		R410A	R410A
	Charge	g	1600	2600
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	15.88
	Max. refrigerant pipe length	m	25	30
	Max. difference in level	m	15	20
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	45	55

model	YORK	Unit	YHFJZH036BAR-AFX	YHFJZH048BAR-AFX
		Outdoor	YHUJYH036BAR-A-X	YHUJYH048BAR-A-X
		Indoor	YHFJXH036BAR--FX	YHFJXH048BAR--FX
Power supply		V/Ph/Hz	230/1/50(60)	230/1/50(60)
Rated Cooling	Capacity	Btu/h	31739	42000
	Capacity	kW(min ~ max)	9.3(2.0 ~ 10.1)	12.3(5.5 ~ 13.3)
	Input	W(min ~ max)	2982(500 ~ 2800)	3975(2000 ~ 6000)
	Rated current	A	10.9	17.5
	EER	W/W	3.11	3.09
	SEER	W/W	5.6	/
Rated Heating	Capacity	Btu/h	36176	47104
	Capacity	kW(min ~ max)	10.6(2.0 ~ 10.8)	13.8(5.5 ~ 15.1)
	Input	W(min ~ max)	2910(500 ~ 2800)	4083(2000 ~ 6000)
	Rated current	A	12.8	18.5
	COP	W/W	3.62	3.38
	SCOP	W/W	3.8	/
Heating P design(-10°C )		kW	9.1	/
Moisture Removal		l/h	3.1	4.6
Max. input consumption		W	4500	6000
Max. current		A	20.0	26.0
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		3	3
	Fin spacing	mm	1.3	1.5
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	1070x39.9x252	1350x39.9x252
Number of circuit			6	12
Indoor fan motor	Input	W	145	198
	Output	W	70	105
	Running current	A	0.82	0.65
	Capacitor	uF	5	5
	Speed (Hi/Me/Lo)	rpm	1145/1092/956	1250/1150/1100
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	1630/1537/1375	2000/1800/1400
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	62/58/46	/
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	49/45/43	53/51/49
Indoor dimension	Unit (WxDxH)	mm	1298×240×700	1580×240×700
	Packing (WxDxH)	mm	1500×315×790	1710×315×790
Indoor weight	Net	kg	37	54
	Gross	kg	47	61
Outdoor coil	Number of row		3	2
	Fin spacing	mm	1.55	1.4
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.0	7.94
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	960 x39.9x792	792x38.1x995
	Number of circuit		8 in 4 out	9
Compressor	Type		Rotary	Rotary
	Capacity	W/h	24333	33718
	Input	W	2200(60Hz)	3010
	Rated current(RLA)	A	9.7	9.3
	Thermal protector		120	120
	Refrigerant oil	ml	870	870

model	YORK	Unit	YHFJZH036BAR-AFX	YHFJZH048BAR-AFX
		Outdoor	YHUJYH036BAR-A-X	YHUJYH048BAR-A-X
		Indoor	YHFJXH036BAR--FX	YHFJXH048BAR--FX
Outdoor fan motor	Input	W	145	180
	Output	W	100	151
	Running current	A	0.4	0.8
	Speed	rpm	900	850
Outdoor air flow		m3/h	3500	4200
Outdoor noise level (Sound power level)		dB(A)	69	73
Outdoor noise level (Sound pressure level)		dB(A)	58	59
Outdoor dimension	Unit (WxDxH)	mm	948×340×840	1008×410×830
	Packing (WxDxH)	mm	1040×430×1000	1130×490×930
Outdoor weight	Net	kg	65	82
	Gross	kg	74	93
Refrigerant	Type		R410A	R410A
	Charge	g	2700	2850
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	19.05
	Max. refrigerant pipe length	m	30	50
	Max. difference in level	m	20	30
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	65	85

model	YORK	Unit	YHFJZH048BAS-AFX	YHFJZH060BAS-AFX
		Outdoor	YHUJYH048BAS-A-X	YHUJYH060BAS-A-X
		Indoor	YHFJXH048BAR--FX	YHFJXH060BAR--FX
Power supply		V/Ph/Hz	400/3/50(60)	400/3/50(60)
Rated Cooling	Capacity	Btu/h	42000	50552
	Capacity	kW(min ~ max)	12.3(5.5 ~ 13.3)	14.8(3.7 ~ 15.1)
	Input	W(min ~ max)	4040(2000 ~ 6000)	5028(2000 ~ 6500)
	Rated current	A	6.6	8.5
	EER	W/W	3.04	2.95
	SEER	W/W	/	/
Rated Heating	Capacity	Btu/h	46464	51761
	Capacity	kW(min ~ max)	13.6(5.5 ~ 15.1)	15.2(3.7 ~ 16.5)
	Input	W(min ~ max)	4120(2000 ~ 6000)	4620(2000 ~ 6500)
	Rated current	A	6.8	8.1
	COP	W/W	3.30	3.28
	SCOP	W/W	/	/
Heating P design(-10°C )		kW	/	/
Moisture Removal		l/h	4.6	5.1
Max. input consumption		W	6000	6500
Max. current		A	10.0	10.5
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		3	3
	Fin spacing	mm	1.5	1.5
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	1350x39.9x252	1350x39.9x252
Number of circuit			12	12
Indoor fan motor	Input	W	198	198
	Output	W	105	105
	Running current	A	0.65	0.65
	Capacitor	uF	5	5
	Speed (Hi/Me/Lo)	rpm	1250/1150/1100	1250/1150/1100
Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	2000/1800/1400	2000/1800/1400
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	/	/
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	53/51/49	53/51/49
Indoor dimension	Unit (WxDxH)	mm	1580×240×700	1580×240×700
	Packing (WxDxH)	mm	1710×315×790	1710×315×790
Indoor weight	Net	kg	54	54
	Gross	kg	61	61
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.4	1.5
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.94	7.94
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	792x38.1x995	970x43.5x1200
	Number of circuit		9	10
Compressor	Type		Rotary	Rotary
	Capacity	W/h	33718	47711
	Input	W	3010	4270
	Rated current(RLA)	A	9.3	12
	Thermal protector		120	120
	Refrigerant oil	ml	870	1400

model	YORK	Unit	YHFJZH048BAS-AFX	YHFJZH060BAS-AFX
		Outdoor	YHUJYH048BAS-A-X	YHUJYH060BAS-A-X
		Indoor	YHFJXH048BAR--FX	YHFJXH060BAR--FX
Outdoor fan motor	Input	W	257	120
	Output	W	142	100
	Running current	A	1.1	0.4
	Speed	rpm	850	930
Outdoor air flow		m3/h	4200	6500
Outdoor noise level (Sound power level)		dB(A)	73	75
Outdoor noise level (Sound pressure level)		dB(A)	59	60
Outdoor dimension	Unit (WxDxH)	mm	1008×410×830	948×340×1250
	Packing (WxDxH)	mm	1130×490×930	1095×410×1400
Outdoor weight	Net	kg	82	96
	Gross	kg	93	106
Refrigerant	Type		R410A	R410A
	Charge	g	2850	3300
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	19.05	19.05
	Max. refrigerant pipe length	m	50	50
	Max. difference in level	m	30	30
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	83	100

Model name	YORK	Unit	YHDJZH012BAM-AGX	YHDJZH018BAM-AGX
		Outdoor	YHUJYH012BAM-A-X	YHUJYH018BAM-A-X
		Indoor	YHDJXH012BAM--GX	YHDJXH018BAM--GX
Power supply		V/Ph/Hz	230/1/50	230/1/50
Rated Cooling	Capacity	Btu/h	11945	17064
	Capacity	kW(min□max)	3.5(0.8□4.1)	5.0(1.7□5.5)
	Input	W(min□max)	1080(280□1650)	1553(550□2100)
	Rated current	A	5	6.8
	EER	W/W	3.24	3.22
	SEER	W/W	5.3	5.6
Rated Heating	Capacity	Btu/h	13793	19112
	Capacity	kW(min□max)	4.0(0.9□4.4)	5.4(1.8□6.0)
	Input	W(min□max)	1160(280□1650)	1496(600□2100)
	Rated current	A	5.1	6.5
	COP	W/W	3.45	3.61
	SCOP	W/W	3.8	3.8
Heating P design(-10□)		kW	3.4	5
Moisture Removal		l/h	1.5	1.9
Max. input consumption		W	1200	2100
Max. current		A	8.0	10.0
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		3	2
	Fin spacing	mm	1.4	1.4
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	434 x 39.9 x 252	895x 26.6 x 252
Number of circuit			3	4
Indoor fan motor	Input	W	40	90
	Output	W	30	74
	Running current	A	0.5	0.5
	Speed (Hi/Me/Lo)	rpm		
	Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		m3/h	550
External static pressure		Pa	0/30	0/30
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	46/41/46	49/43/39
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	33/28/23	36/30/26
Indoor dimension	Unit (WxDxH)	mm	850×420×185	1170×420×185
	Packing (WxDxH)	mm	1025×525×260	1345×525×260
Indoor weight	Net	kg	17	25
	Gross	kg	18	26.5
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.75	1.41
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	9.52	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	793 x43.3x550	793 x26.6x462
Number of circuit			4	3
Compressor	Type		Rotary	Rotary
	Capacity	W/h	9043.92	13992.48
	Input	W	690	1245
	Rated current(RLA)	A	2650	8.4
	Thermal protector		115	120
	Refrigerant oil	ml	370	500

model	YORK	Unit	YHDJZH012BAM-AGX	YHDJZH018BAM-AGX
		Outdoor	YHUJYH012BAM-A-X	YHUJYH018BAM-A-X
		Indoor	YHDJXH012BAM--GX	YHDJXH018BAM--GX
Outdoor fan motor	Input	W	62	56
	Output	W	40	41
	Running current	A	0.2	0.25
	Speed	rpm	850	860
Outdoor air flow		m3/h	1900	2200
Outdoor noise level (Sound power level)		dB(A)	62	64
Outdoor noise level (Sound pressure level)		dB(A)	54	54
Outdoor dimension	Unit (WxDxH)	mm	780×245×540	810×288×688
	Packing (WxDxH)	mm	930×340×614	949×406×745
Outdoor weight	Net	kg	32	43
	Gross	kg	35	45.5
Refrigerant	Type		R410A	R410A
	Charge	g	1100	1300
Refrigerant pipe	Liquid side	mm	6.35	6.35
	Gas side	mm	9.52	12.7
	Max. refrigerant pipe length	m	15	25
	Max. difference in level	m	10	15
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	18□43	18□43
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	25	35

Model name	YORK	Unit	YHDJZH024BAR-AGX	YHEJZH024BAR-AGX
		Outdoor	YHUJYH024BAR-A-X	YHUJYH024BAR-A-X
		Indoor	YHDJXH024BAR--GX	YHEJXH024BAR--GX
Power supply		V/Ph/Hz	220/1/50(60)	230/1/50(60)
Rated Cooling	Capacity	Btu/h	24231	24231
	Capacity	kW(min□max)	7.1(1.8□7.5)	7.1(1.8□7.5)
	Input	W(min□max)	2180(600□2600)	2158(600□2600)
	Rated current	A	9.8	9.8
	EER	W/W	3.25	3.29
	SEER	W/W	5.6	5.2
Rated Heating	Capacity	Btu/h	24231	25063
	Capacity	kW(min□max)	7.2(2.8□7.6)	7.3(2.3□7.8)
	Input	W(min□max)	1980(600□2600)	2000(600□2600)
	Rated current	A	9.2	9.5
	COP	W/W	3.63	3.65
	SCOP	W/W	3.8	3.8
Heating P design(-10□)		kW	6.5	6.5
Moisture Removal		l/h	2.2	2.2
Max. input consumption		W	2600	2600
Max. current		A	12.0	12.0
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		3	3
	Fin spacing	mm	1.4	1.5
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	895x 39.9 x 252	813x39.9 x 252
Number of circuit			6	6
Indoor fan motor	Input	W	90	190
	Output	W	74	88
	Running current	A	0.5	0.86
	Speed (Hi/Me/Lo)	rpm		1200/1100/1000
	Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		1100	1050/1000/900
External static pressure		Pa	0/30	0/50
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	52/45/42	56/54/51
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	39/32/29	44/42/39
Indoor dimension	Unit (WxDxH)	mm	1170×420×185	950×650×270
	Packing (WxDxH)	mm	1345×525×260	1170×860×340
Indoor weight	Net	kg	27	37
	Gross	kg	28.5	39
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.65	1.65
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.94	7.94
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	840 x39.9x700	840 x39.9x700
	Number of circuit		4	4
Compressor	Type		Rotary	Rotary
	Capacity	W/h	13992.48	13992.48
	Input	W	1245	1245
	Rated current(RLA)	A	8.4	8.4
	Thermal protector		120	120
	Refrigerant oil	ml	500	500

model	YORK	Unit	YHDJZH024BAR-AGX	YHEJZH024BAR-AGX
		Outdoor	YHUJYH024BAR-A-X	YHUJYH024BAR-A-X
		Indoor	YHDJXH024BAR--GX	YHEJXH024BAR--GX
Outdoor fan motor	Input	W	85	85
	Output	W	70	70
	Running current	A	0.4	0.4
	Speed	rpm	880	880
Outdoor air flow		m3/h	3000	3000
Outdoor noise level (Sound power level)		dB(A)	68	68
Outdoor noise level (Sound pressure level)		dB(A)	57	57
Outdoor dimension	Unit (WxDxH)	mm	860×308×730	860×308×730
	Packing (WxDxH)	mm	995×420×815	995×420×815
Outdoor weight	Net	kg	49	49
	Gross	kg	52	52
Refrigerant	Type		R410A	R410A
	Charge	g	1600	1600
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	15.88
	Max. refrigerant pipe length	m	25	25
	Max. difference in level	m	15	15
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	50	50

Model name	YORK	Unit	YHEJZH028BAR-AGX	YHEJZH036BAR-AGX
		Outdoor	YHUJYH028BAR-A-X	YHUJYH036BAR-A-X
		Indoor	YHEJXH028BAR--GX	YHEJXH036BAR--GX
Power supply		V/Ph/Hz	230/1/50(60)	230/1/50(60)
Rated Cooling	Capacity	Btu/h	27693	32080
	Capacity	kW(min□max)	8.1(1.9□9.0)	9.4(2.0□10.1)
	Input	W(min□max)	2691(500□3800)	3175(500□3800)
	Rated current	A	12	14.3
	EER	W/W	3.01	2.96
	SEER	W/W	5.2	5.1
Rated Heating	Capacity	Btu/h	31056	34811
	Capacity	kW(min□max)	9.1(2.0□9.6)	10.2(2.0□11.0)
	Input	W(min□max)	2465(500□3800)	2887(500□3800)
	Rated current	A	10.5	13.2
	COP	W/W	3.69	3.53
	SCOP	W/W	3.5	3.4
Heating P design(-10□)		kW	7.8	9.1
Moisture Removal		l/h	3.1	3.6
Max. input consumption		W	4200	4500
Max. current		A	19.0	20.0
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		4	4
	Fin spacing	mm	1.3	1.5
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	1001x39.9 x 309	1001x39.9 x 309
Number of circuit			6	6
Indoor fan motor	Input	W	375	375
	Output	W	207	207
	Running current	A	1.5	1.5
	Speed (Hi/Me/Lo)	rpm	1200/1100/1000	1200/1100/1000
	Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		2090/1970/1792	2090/1970/1792
	External static pressure	Pa	50/100	50/100
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	63/61/59/55	63/61/59/55
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	50/48/46/42	50/48/46/42
Indoor dimension	Unit (WxDxH)	mm	1135×742×270	1135×742×270
	Packing (WxDxH)	mm	1300×850×380	1300×850×380
Indoor weight	Net	kg	45.4	45.4
	Gross	kg	51.3	51.3
Outdoor coil	Number of row		2	3
	Fin spacing	mm	1.7	1.55
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.94	7.0
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	855 x38.1x792	960 x39.9x792
	Number of circuit		6	8 in 4 out
Compressor	Type		Rotary	Rotary
	Capacity	W/h	24333	24333
	Input	W	2200(60Hz)	2200(60Hz)
	Rated current(RLA)	A	9.7	9.7
	Thermal protector		120	120
	Refrigerant oil	ml	870	870

model	YORK	Unit	YHEJZH028BAR-AGX	YHEJZH036BAR-AGX
		Outdoor	YHUJYH028BAR-A-X	YHUJYH036BAR-A-X
		Indoor	YHEJXH028BAR--GX	YHEJXH036BAR--GX
Outdoor fan motor	Input	W	145	145
	Output	W	100	100
	Running current	A	0.4	0.4
	Speed	rpm	900	900
Outdoor air flow		m3/h	3500	3500
Outdoor noise level (Sound power level)		dB(A)	69	69
Outdoor noise level (Sound pressure level)		dB(A)	58	58
Outdoor dimension	Unit (WxDxH)	mm	948×340×840	948×340×840
	Packing (WxDxH)	mm	1040×430×1000	1040×430×1000
Outdoor weight	Net	kg	64	65
	Gross	kg	73	74
Refrigerant	Type		R410A	R410A
	Charge	g	2600	2700
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	15.88	15.88
	Max. refrigerant pipe length	m	30	30
	Max. difference in level	m	20	20
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	55	65

Model name	YORK	Unit	YHEJZH048BAR-AGX	YHEJZH048BAS-AGX
		Outdoor	YHUJYH048BAR-A-X	YHUJYH048BAS-A-X
		Indoor	YHEJXH048BAR--GX	YHEJXH048BAR--GX
Power supply		V/Ph/Hz	230/1/50(60)	400/3/50(60)
Rated Cooling	Capacity	Btu/h	41636	41295
	Capacity	kW(min□max)	12.2(5.6□13.6)	12.1(5.6□13.6)
	Input	W(min□max)	4340(2000□6000)	4285(2000□6000)
	Rated current	A	18.5	7
	EER	W/W	2.81	2.82
	SEER	W/W	/	/
Rated Heating	Capacity	Btu/h	46578	45895
	Capacity	kW(min□max)	13.6(5.6□15.4)	13.4(5.6□15.4)
	Input	W(min□max)	4240(2000□6000)	4170(2000□6000)
	Rated current	A	19	7
	COP	W/W	3.21	3.21
	SCOP	W/W	/	/
Heating P design(-10□)		kW	/	/
Moisture Removal		l/h	4.5	4.5
Max. input consumption		W	6000	6000
Max. current		A	26.0	10.0
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		4	4
	Fin spacing	mm	1.5	1.5
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7	7
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	1001x39.9 x 309	1001x39.9 x 309
Number of circuit			6	6
Indoor fan motor	Input	W	350	350
	Output	W	240	240
	Running current	A	1.6	1.6
	Speed (Hi/Me/Lo)	rpm	1200/1100/1000	1200/1100/1000
	Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		2090/1970/1792	2090/1970/1792
External static pressure		Pa	50/100	50/100
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	/	/
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	51/49/47/43	51/49/47/43
Indoor dimension	Unit (WxDxH)	mm	1135×742×270	1135×742×270
	Packing (WxDxH)	mm	1300×850×380	1300×850×380
Indoor weight	Net	kg	52	52
	Gross	kg	55	55
Outdoor coil	Number of row		2	2
	Fin spacing	mm	2	1.4
	Fin material		1.4	Hydrophilic Aluminium
	Tube outside diameter	mm	Hydrophilic Aluminium	7.94
	Tube material		7.94	Inner Grooved copper tube
	Coil length x height x width	mm	Inner Grooved copper tube	792x38.1x995
	Number of circuit		792x38.1x995	9
Compressor	Type		Rotary	Rotary
	Capacity	W/h	33718	33718
	Input	W	3010	3010
	Rated current(RLA)	A	9.3	9.3
	Thermal protector		120	120
	Refrigerant oil	ml	870	870

model	YORK	Unit	YHEJZH048BAR-AGX	YHEJZH048BAS-AGX
		Outdoor	YHUJYH048BAR-A-X	YHUJYH048BAS-A-X
		Indoor	YHEJXH048BAR--GX	YHEJXH048BAR--GX
Outdoor fan motor	Input	W	180	257
	Output	W	151	142
	Running current	A	0.8	1.1
	Speed	rpm	850	850
Outdoor air flow		m3/h	4200	4200
Outdoor noise level (Sound power level)		dB(A)	73	73
Outdoor noise level (Sound pressure level)		dB(A)	59	59
Outdoor dimension	Unit (WxDxH)	mm	1008×410×830	1008×410×830
	Packing (WxDxH)	mm	1130×490×930	1130×490×930
Outdoor weight	Net	kg	82	82
	Gross	kg	93	93
Refrigerant	Type		R410A	R410A
	Charge	g	2850	2850
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	19.05	19.05
	Max. refrigerant pipe length	m	50	50
	Max. difference in level	m	30	30
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	85	83

Model name	YORK	Unit	YHGJZH048BAR-AGX	YHGJZH048BAS-AGX
		Outdoor	YHUJYH048BAR-A-X	YHUJYH048BAS-A-X
		Indoor	YHGJXH048BAR--GX	YHGJXH048BAR--GX
Power supply		V/Ph/Hz	230/1/50(60)	400/3/50(60)
Rated Cooling	Capacity	Btu/h	42319	41295
	Capacity	kW(min□max)	12.4(5.6□13.6)	12.1(5.6□13.6)
	Input	W(min□max)	4316(2000□6000)	4300(2000□6000)
	Rated current	A	18.5	7
	EER	W/W	2.87	2.82
	SEER	W/W	/	/
Rated Heating	Capacity	Btu/h	46748	45895
	Capacity	kW(min□max)	13.7(5.6□15.4)	13.4(5.6□15.4)
	Input	W(min□max)	3800(2000□6000)	3700(2000□6000)
	Rated current	A	17	6.8
	COP	W/W	3.61	3.62
	SCOP	W/W	/	/
Heating P design(-10□)		kW	/	/
Moisture Removal		l/h	4.5	4.5
Max. input consumption		W	6000	6000
Max. current		A	26.0	10.0
Starting current		A	3	3
Operation Control			Wired&Wireless	Wired&Wireless
Indoor coil	Number of row		3	3
	Fin spacing	mm	1.8	1.8
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	9.52	9.52
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	1062x64.95 x450	1062x64.95 x450
Number of circuit			5	5
Indoor fan motor	Input	W	470	470
	Output	W	270	270
	Running current	A	1.95	1.95
	Speed (Hi/Me/Lo)	rpm	1070/860/690	1070/860/690
	Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		2580/2070/1560	2580/2070/1560
	External static pressure	Pa	50□150	50□150
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	/	/
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	50/46/42	50/46/42
Indoor dimension	Unit (WxDxH)	mm	1197×830×360	1197×830×360
	Packing (WxDxH)	mm	1430×940×420	1430×940×420
Indoor weight	Net	kg	70	70
	Gross	kg	77	77
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.4	1.4
	Fin material		Hydrophilic Aluminium	Hydrophilic Aluminium
	Tube outside diameter	mm	7.94	7.94
	Tube material		Inner Grooved copper tube	Inner Grooved copper tube
	Coil length x height x width	mm	792x38.1x995	792x38.1x995
	Number of circuit		9	9
Compressor	Type		Rotary	Rotary
	Capacity	W/h	33718	33718
	Input	W	3010	3010
	Rated current(RLA)	A	9.3	9.3
	Thermal protector		120	120
	Refrigerant oil	ml	870	870

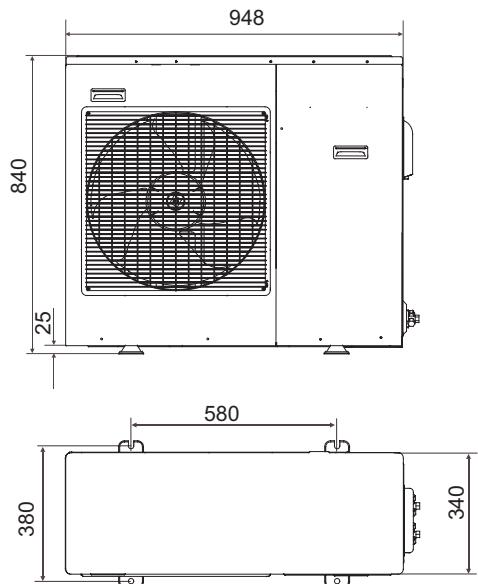
model	YORK	Unit	YHGJZH048BAR-AGX	YHGJZH048BAS-AGX
		Outdoor	YHUJYH048BAR-A-X	YHUJYH048BAS-A-X
		Indoor	YHGJXH048BAR--GX	YHGJXH048BAR--GX
Outdoor fan motor	Input	W	180	257
	Output	W	151	142
	Running current	A	0.8	1.1
	Speed	rpm	850	850
Outdoor air flow		m3/h	4200	4200
Outdoor noise level (Sound power level)		dB(A)	73	73
Outdoor noise level (Sound pressure level)		dB(A)	59	59
Outdoor dimension	Unit (WxDxH)	mm	1008×410×830	1008×410×830
	Packing (WxDxH)	mm	1130×490×930	1130×490×930
Outdoor weight	Net	kg	82	82
	Gross	kg	93	93
Refrigerant	Type		R410A	R410A
	Charge	g	2850	2850
Refrigerant pipe	Liquid side	mm	9.52	9.52
	Gas side	mm	19.05	19.05
	Max. refrigerant pipe length	m	50	50
	Max. difference in level	m	30	30
Operation temperature range		°C	16□30	16□30
Ambient temperature range (Cooling)		°C	-10□46	-10□46
Ambient temperature range (Heating)		°C	-15□24	-15□24
Application area		m <sup>2</sup>	85	83

Model name	YORK	Unit	YHGJZH060BAS-AGX
		Outdoor	YHUJYH060BAS-A-X
		Indoor	YHGJXH060BAR--GX
Power supply		V/Ph/Hz	400/3/50(60)
Rated Cooling	Capacity	Btu/h	51875
	Capacity	kW(min□max)	15.2(3.7□15.8)
	Input	W(min□max)	5370(2000□6500)
	Rated current	A	8.5
	EER	W/W	2.83
	SEER	W/W	/
Rated Heating	Capacity	Btu/h	54605
	Capacity	kW(min□max)	16.0(3.7□17.0)
	Input	W(min□max)	4680(2000□6500)
	Rated current	A	7.5
	COP	W/W	3.42
	SCOP	W/W	/
Heating P design(-10□)		kW	/
Moisture Removal		l/h	4.9
Max. input consumption		W	6500
Max. current		A	10.5
Starting current		A	3
Operation Control			Wired&Wireless
Indoor coil	Number of row		3
	Fin spacing	mm	1.8
	Fin material		Hydrophilic Aluminium
	Tube outside diameter	mm	9.52
	Tube material		Inner Grooved copper tube
	Coil length x height x width	mm	1062x64.95 x450
Number of circuit			5
Indoor fan motor	Input	W	470
	Output	W	270
	Running current	A	1.95
	Speed (Hi/Me/Lo)	rpm	1070/860/690
	Indoor air flow at 0/50/100 Pa(Hi/Me/Lo)		2580/2070/1560
	External static pressure		Pa 50□150
Indoor noise level(Sound power level) (Hi/Me/Lo)		dB(A)	/
Indoor noise level (Sound pressure level)(Hi/Me/Lo)		dB(A)	50/46/42
Indoor dimension	Unit (WxDxH)	mm	1197x830x360
	Packing (WxDxH)	mm	1430x940x420
Indoor weight	Net	kg	70
	Gross	kg	77
Outdoor coil	Number of row		2
	Fin spacing	mm	1.5
	Fin material		Hydrophilic Aluminium
	Tube outside diameter	mm	7.94
	Tube material		Inner Grooved copper tube
	Coil length x height x width	mm	970x38.1x1200
	Number of circuit		10
Compressor	Type		Rotary
	Capacity	W/h	47711
	Input	W	4270
	Rated current(RLA)	A	12
	Thermal protector		120
	Refrigerant oil	ml	1400

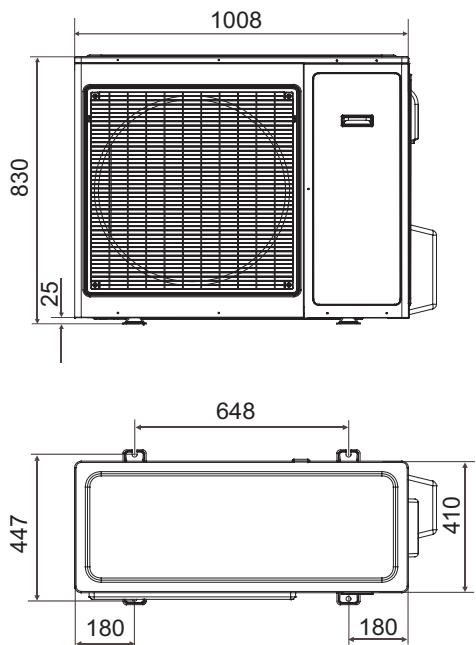
model	YORK	Unit	YHGJZH060BAS-AGX
		Outdoor	YHUJYH060BAS-A-X
		Indoor	YHGJXH060BAR--GX
Outdoor fan motor	Input	W	120
	Output	W	100
	Running current	A	0.55
	Speed	rpm	930
Outdoor air flow		m3/h	6500
Outdoor noise level (Sound power level)		dB(A)	75
Outdoor noise level (Sound pressure level)		dB(A)	60
Outdoor dimension	Unit (WxDxH)	mm	948×340×1250
	Packing (WxDxH)	mm	1095×410×1400
Outdoor weight	Net	kg	96
	Gross	kg	106
Refrigerant	Type		R410A
	Charge	g	3300
Refrigerant pipe	Liquid side	mm	9.52
	Gas side	mm	19.05
	Max. refrigerant pipe length	m	50
	Max. difference in level	m	30
Operation temperature range		°C	16□30
Ambient temperature range (Cooling)		°C	-10□46
Ambient temperature range (Heating)		°C	-15□24
Application area		m <sup>2</sup>	105

### 3. Dimension

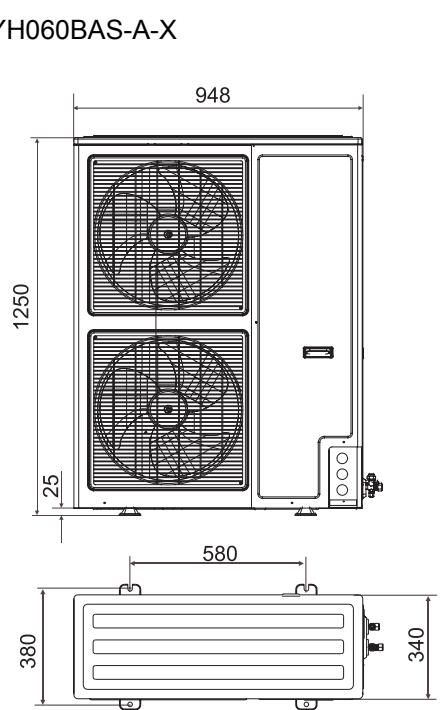
YHUUJYH028BAR-A-X YHUUJYH036BAR-A-X



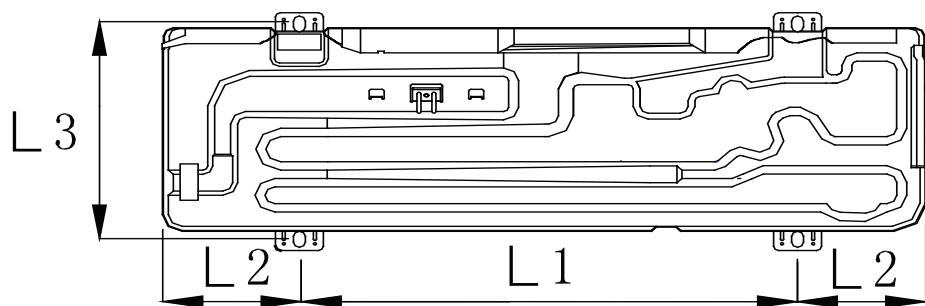
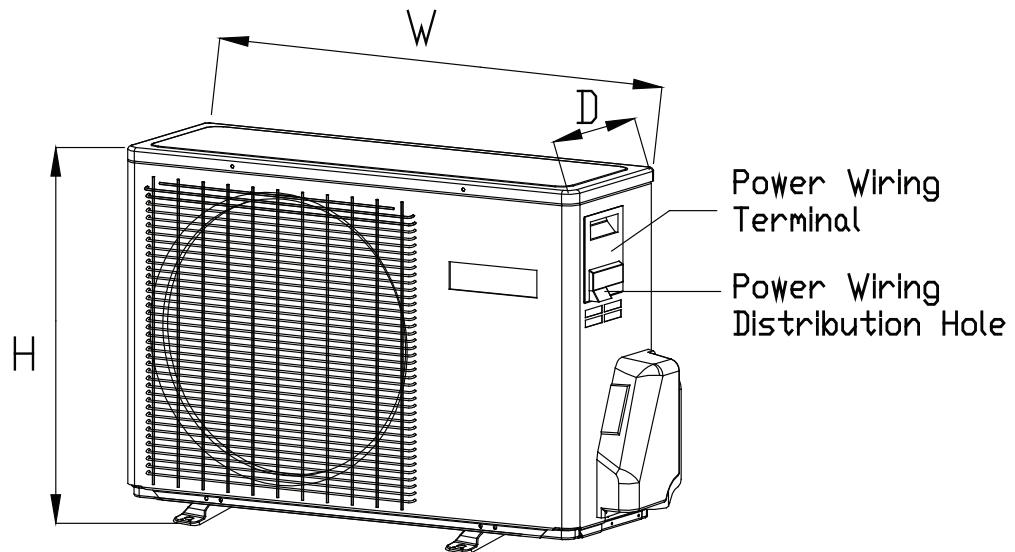
YHUUJYH048BAR-A-X



YHUUJYH048BAS-A-X

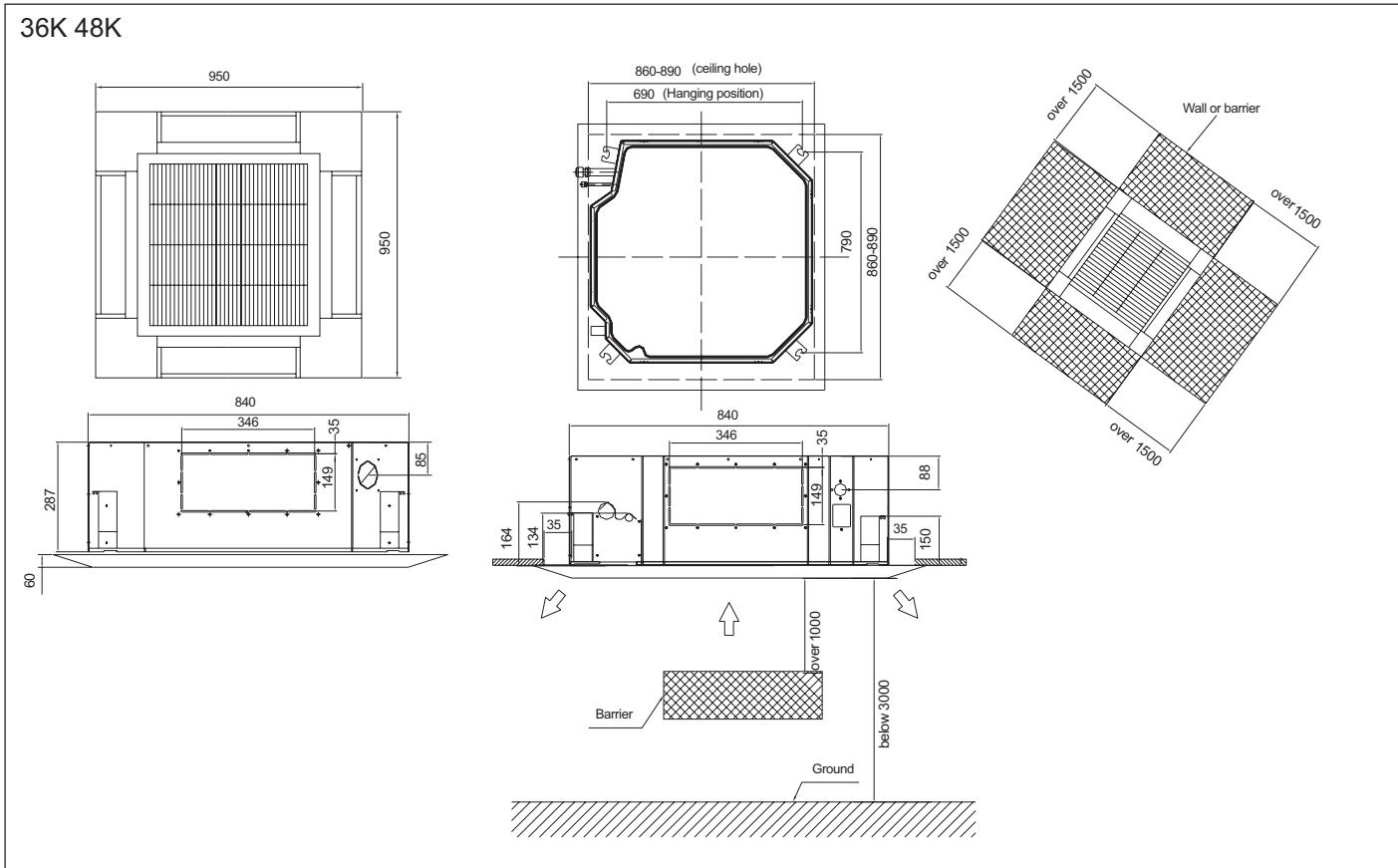
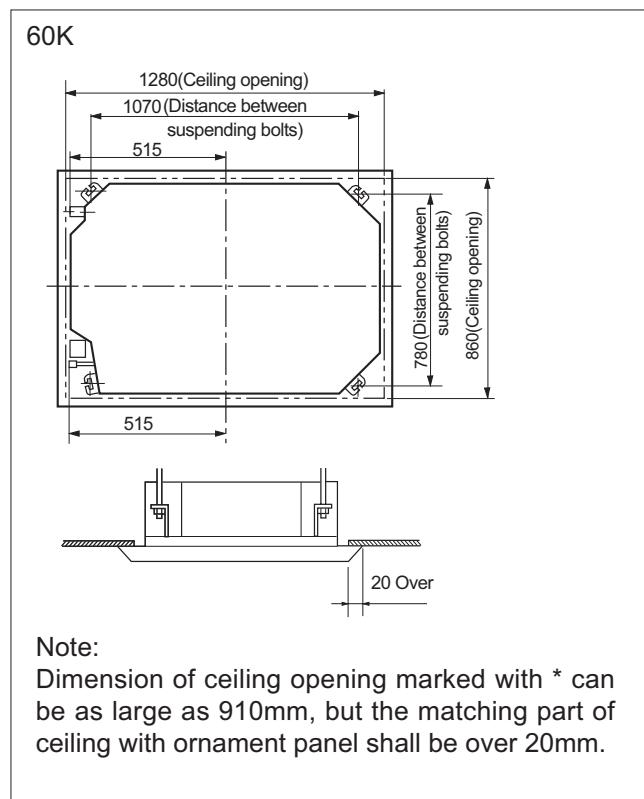
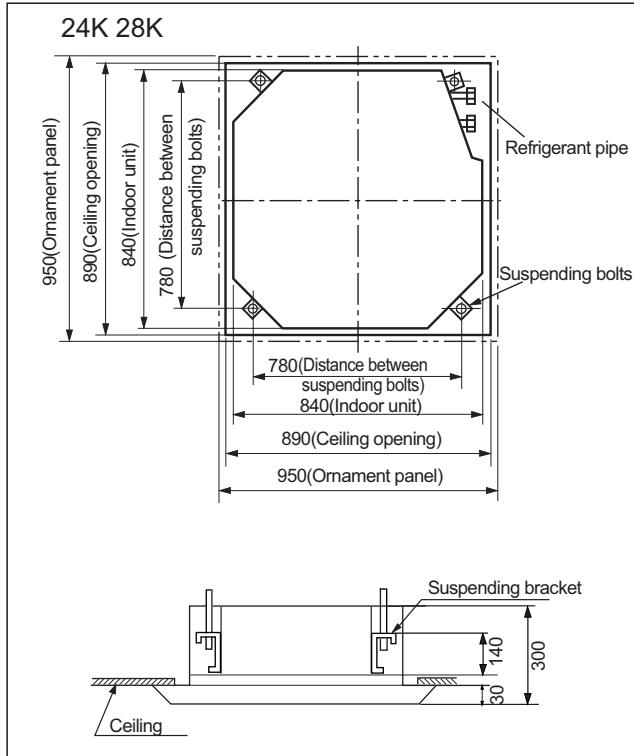


YHUUJYH024BAR-A-X

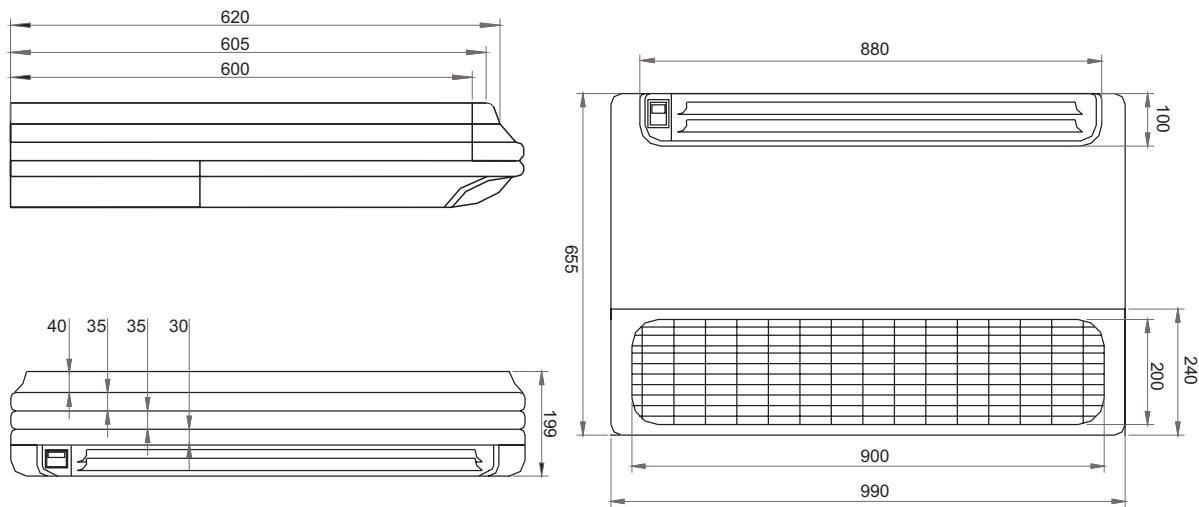


Model	W	D	H	L1	L2	L3
YHUUJYH024BAR-A-X	860	308	730	633	113.5	340

## Cassette

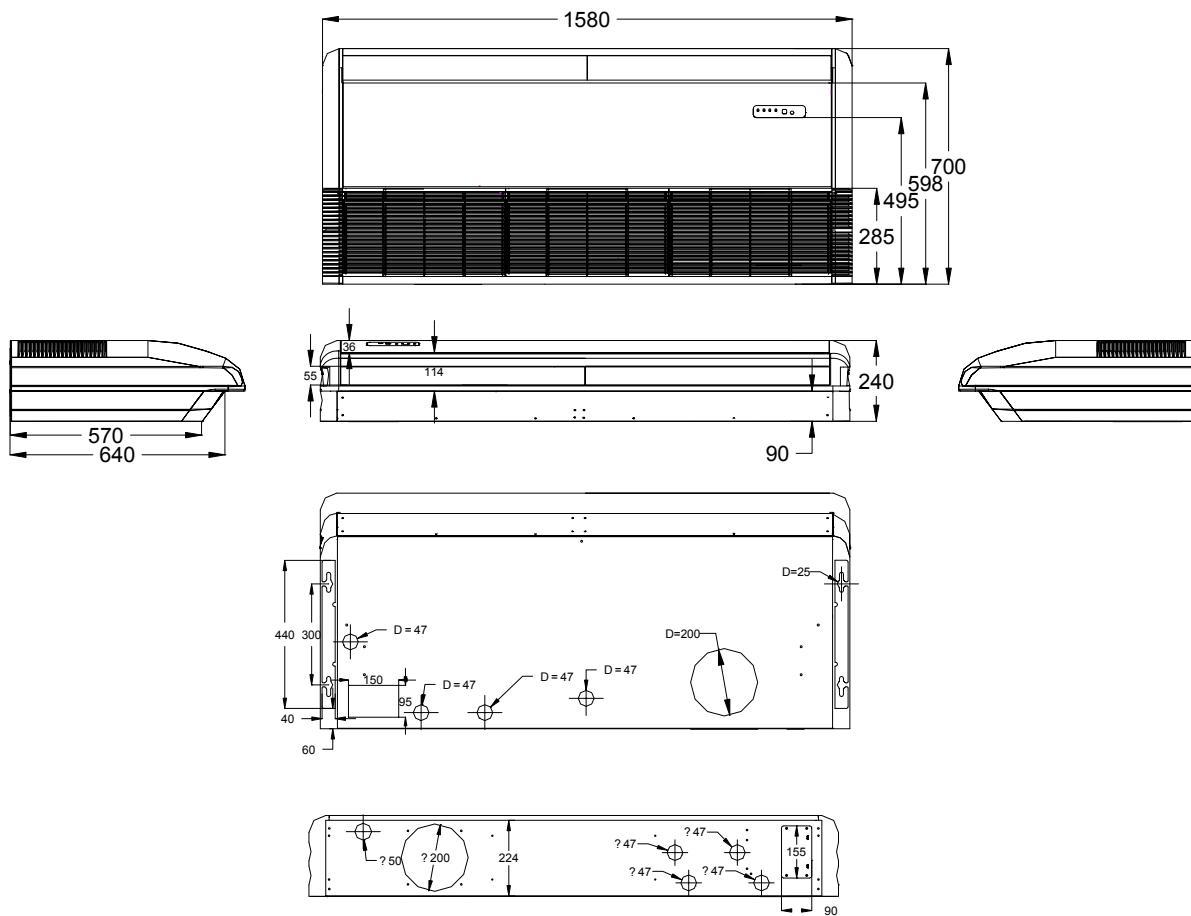


YHFJZH012BAM-AFX YHFJZH018BAM-AFX YHFJZH024BAR-AFX



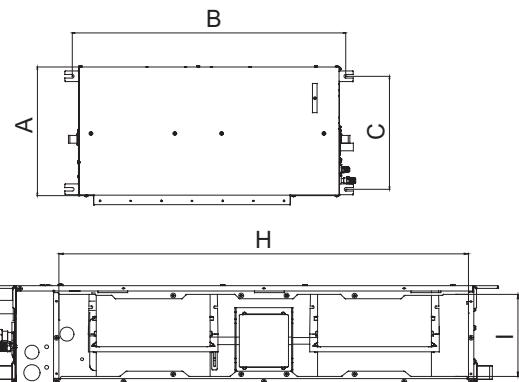
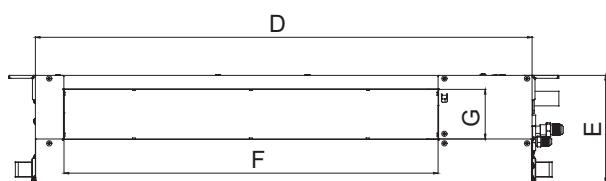
YHFJZH048BAS-AFX YHFJZH060BAS-AFX

(mm)



## Low ESP duct

12K  
18K  
24K

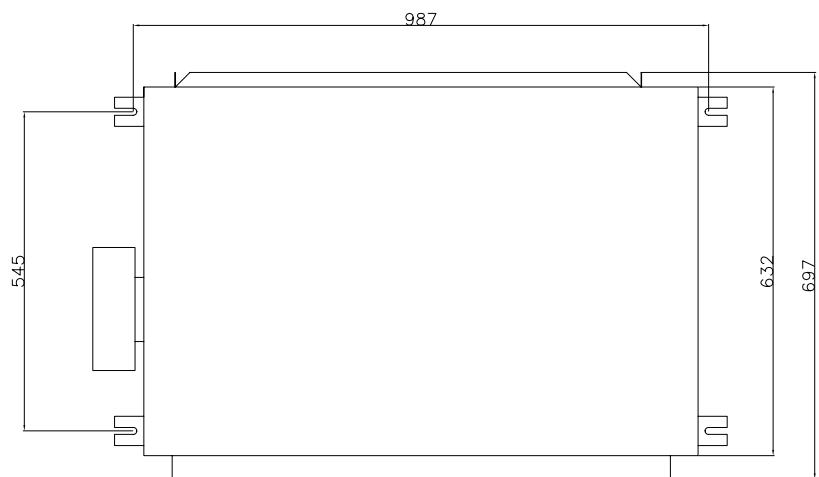
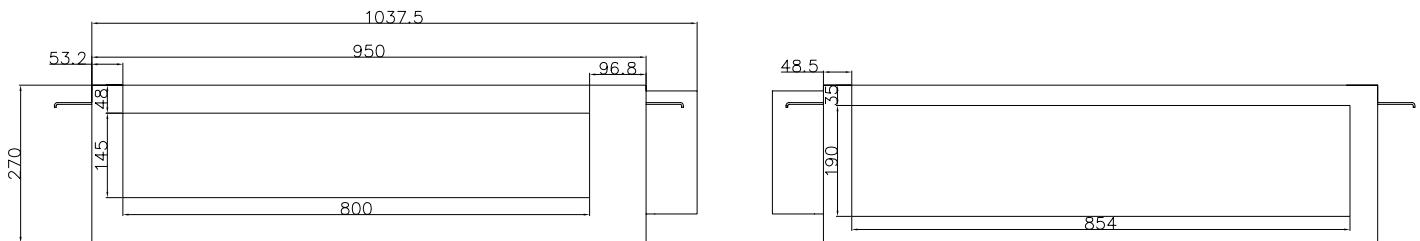


Indoor unit dimensions(unit:mm)

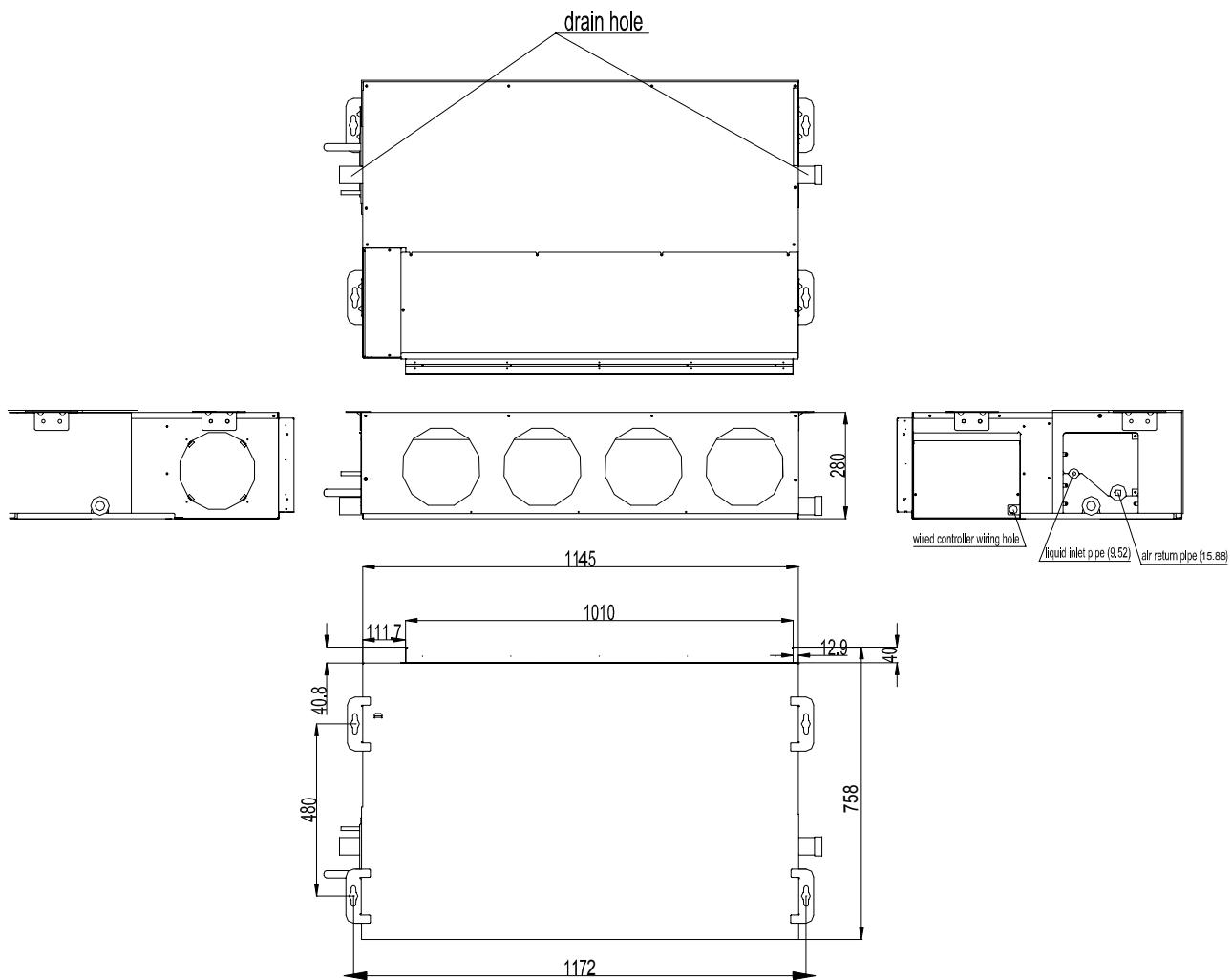
Unit model	A	B	C	D	E	F	G	H	I
12K	420	892	370	850	185	640	85	760	152
18K 24K	420	1212	370	1170	185	960	85	1080	152

## Med ESP duct

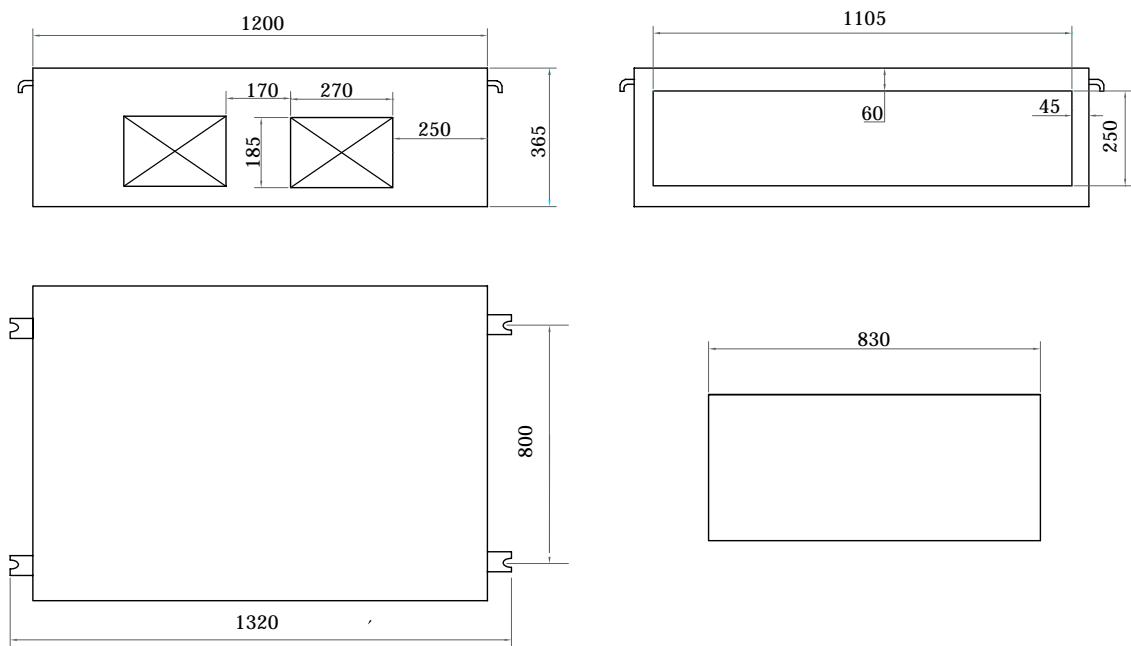
YHEJXH024BAR--GX



YHEJXH028/36/48BAR--GX



YHGJXH048/60BAR--GX



## 4. Piping and wiring installation

### outdoor unit

Carefully read the following information in order to operate the air conditioner correctly.

Below are listed three kinds of Safety Precautions and Suggestions.

**⚠ WARNING** Incorrect operations may result in severe consequences of death or serious injuries.

**⚠ CAUTION** Incorrect operations may result in injuries or machine damages; in some cases may cause serious consequences.

**INSTRUCTIONS:** These information can ensure the correct operation of the machine.

Symbols used in the illustrations

(): Indicates an action that must be avoided.

(): Indicates that important instructions must be followed.

(): Indicates a part which must be grounded.

(): Beware of electric shock (This symbol is displayed on the main unit label.)

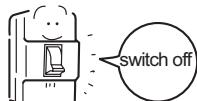
After reading this handbook, hand it over to those who will be using the unit.

The user of the unit should keep this manual at hand and make it available to those who will be performing repairs or relocating the unit. Also, make it available to the new user when the user changes hands.

Be sure to conform with the following important Safety Precautions.

#### **⚠ WARNING**

- If any abnormal phenomena is found (e.g. smell of firing), please cut off the power supply immediately, and contact the dealer to find out the handling method.



In such case, to continue using the conditioner will damage the conditioner, and may cause electrical shock or fire hazard.

- After a long time use of air-conditioner the base should be checked for any damages.

If the damaged base is not repaired, the unit may fall down and cause accidents.



- No goods or nobody is permitted to placed on or stand on outdoor unit. The falling of goods and people may cause accidents.



- Don't operate the air-conditioner with damp hands. Otherwise it will be shocked.



- Only use correctly-typed fuse. May not use wire or any other materials replacing fuse, otherwise it may cause faults or fire accidents.



- Use discharge pipe correctly to ensure efficient discharge. Incorrect pipe use may cause water leaking.

- Installed electrical-leaking circuit breaker. It easily cause electrical shock without circuit breaker.

- Don't dismantle the outlet of the outdoor unit.

The exposure of fan is very dangerous which may harm human beings.



- When need maintenance and repairment, call dealer to handle it.

Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard.



- Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near air-conditioner may cause fire hazard.

Please let the dealer be responsible for installing the conditioner. Incorrect installation may cause water leak, electrical shock and fire hazard.

- Call the dealer to take measures to prevent the refrigerant from leaking.

If conditioner is installed in a small room, be sure to take every measure in order to prevent suffocation accident even in case of refrigerant leakage.

- When conditioner is installed or reinstalled, the dealer should be responsible for them.

Incorrect installation may cause water leaking, electrical shock and fire hazard.

- Connect earthing wire.

Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, incorrect earthing may cause shock.



Earthing

# Safety Precautions

## ⚠ WARNING

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Have the unit professionally installed. Improper installation by an unqualified person may result in water leak, electric shock, or fire.</li><li>• Place the unit on a stable, level surface that withstands the weight of the unit to prevent the unit from tipping over or falling causing injury as a result.</li><li>• Only use specified cables for wiring. Securely connect each cable, and make sure that the cables are not straining the terminals. Cables not connected securely and properly may generate heat and cause fire.</li><li>• Take necessary safety measures against typhoons and earthquakes to prevent the unit from falling over.</li><li>• Do not make any changes or modifications to the unit. In case of problems, consult the dealer. If repairs are not made properly, the unit may leak water and present a risk of electric shock, or it may produce smoke or cause fire.</li></ul> | <ul style="list-style-type: none"><li>• Be sure to carefully follow each step in this handbook when installing the unit. Improper installation may result in water leak, electric shock, smoke or fire.</li><li>• Have all electrical work performed by a licensed electrician according to the local regulations and the instructions given in this manual. Secure a circuit designated exclusively to the unit. Improper installation or a lack of circuit capacity may cause the unit to malfunction or present a risk of electric shock, smoke, and fire.</li><li>• Securely attach the terminal cover(panel) on the unit. If installed improperly, dust and/or water may enter the unit and present a risk of electric shock, smoke or fire.</li><li>• Only use refrigerant R410A as indicated on the unit when installing or relocating the unit. The use of any other refrigerant or an introduction of air into the unit circuit may cause the unit to run an abnormal cycle and abnormal cycle and cause the unit to burst.</li></ul> |
|---|--|

## ⚠ WARNING

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Do not touch the fins on the heat exchanger with bare hands, for they are sharp and dangerous.</li><li>• In the event of a refrigerant gas leak, provide adequate ventilation to the room. If leaked refrigerant gas is exposed to a heat source, noxious gases may form.</li><li>• With All-Fresh type air conditioners, outdoor air may be directly blown into the room upon thermo off. Take this into consideration when installing the unit. Direct exposure to outdoor air may present a health hazard, and it may also cause food items to deteriorate.</li><li>• Do not try to defeat the safety features of the devices, and do not change the settings. Defeating the safety features on the unit such as the pressure switch and temperature switch or using parts other than the dealer or specialist may result in fire or explosion.</li><li>• This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.</li></ul> | <ul style="list-style-type: none"><li>• When installing the unit in a small room, safeguard against hypoxia that results from leaked refrigerant reaching the threshold level. Consult the dealer for necessary measures to take.</li><li>• When relocating the air conditioner, consult the dealer or a specialist. Improper installation may result in water leak, electric shock, or fire.</li><li>• After completing the service work, check for a refrigerant gas leak. If leaked gas refrigerant is exposed to a heat source such as fan heater, stove, and electric grill, noxious gases may form.</li><li>• Only use specified parts. Have the unit professionally installed. Improper installation may cause water leak, electric shock, smoke, or fire.</li><li>• Children should be supervised to ensure that they do not play with the appliance.</li></ul> |
|--|---|

# Safety Precautions

## Precautions for Handling Units for Use with R410A

### ⚠ Caution

Do not use the existing refrigerant piping

- The old refrigerant and refrigerator oil in the existing piping contain a large amount of chlorine, which will cause the refrigerator oil in the new unit to deteriorate.
- R410A is a high-pressure refrigerant, and the use of the existing piping may result in bursting.

Use a vacuum pump with a reverse-flow check valve.

- If other types of valves are used, the vacuum pump oil will flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate.

Do not use the following tools that have been used with the conventional refrigerants. Prepare tools that are for exclusive use with R410A.

(Gauge manifold, charging hose, gas leak detector, reverse-flow check valve, refrigerant charge base, vacuum gauge, and refrigerant recovery equipment.)

- If refrigerant and/or refrigerant oil left on these tools are mixed in with R410, or if water is mixed with R410A, it will cause the refrigerant to deteriorate.
- Since R410A does not contain chlorine, gas-leak detectors for conventional refrigerators will not work.

Keep the inner and outer surfaces of the pipes clean and free of contaminants such as sulfur, oxides, dust/dirt shaving particles, oils, and moisture.

- Contaminants inside the refrigerant piping will cause the refrigerant oil to deteriorate.

### ⚠ Caution

Store the piping to be used during installation indoors, and keep both ends of the piping sealed until immediately before brazing.(keep elbows and other joints wrapped in plastic.)

- If dust, dirt, or water enters the refrigerant cycle, it may cause the oil in the unit to deteriorate or may cause the compressor to malfunction.

Use a small amount of ester oil, ether oil, or alkylbenzene to coat flares and flange connections.

- A large amount of mineral oil will cause the refrigerating machine oil to deteriorate.

Use liquid refrigerant to charge the system.

- Charge the unit with gas refrigerant will cause the refrigerant in the cylinder to change its composition and will lead to a drop in performance

Do not use a charging cylinder.

- The use of charging cylinder will change the composition of the refrigerant and lead to power loss.

Exercise special care when handling the tools.

- An introduction of foreign objects such as dust, dirt or water into the refrigerant cycle will cause the refrigerating machine oil to deteriorate.

Only use R410A refrigerant.

- The use of refrigerants containing chlorine(i.e. R22) will cause the refrigerant to deteriorate.

## Before Installing the Unit

### ⚠ Caution

Do not install the unit in a place where there is a possibility of flammable gas leak.

- Leaked gas accumulated around the unit may start a fire.

Do not use the unit to preserve food, animals, plants, artifacts, or for other special purposes.

- The unit is not designed to provide adequate conditions to preserve the quality of these items.

Do not use the unit in an unusual environment

- The use of the unit in the presence of a large amount of oil, steam, acid, alkaline solvents or special types of sprays may lead to a remarkable drop in performance and/or malfunction and presents a risk of electric shock, smoke, or fire.
- The presence of organic solvents, corroded gas (such as ammonia, sulfur compounds, and acid may cause gas or water leak.)

When installing the unit in a hospital, take necessary measures against noise.

- High-frequency medical equipment may interfere with the normal operation of the air conditioning unit or the air conditioning unit may interfere with the normal operation of the medical equipment

Do not place the unit on or over things that may not get wet.

- When humidity level exceeds 80% or when the drainage system is clogged, indoor units may drip water.
- Installation of a centralized drainage system for the outdoor unit may also need to be considered to prevent water drips from the outdoor units.

# Safety Precautions

## Before Installing (Relocating) the Unit or Performing Electric Work

<b>⚠ Caution</b>	
Ground the unit. <ul style="list-style-type: none"><li>• Do not connect the grounding on the unit to gas pipes, water pipes, lightning rods, or the grounding terminals of telephones. Improper grounding presents a risk of electric shock, smoke, fire, or the noise caused by improper grounding may cause the unit to malfunction.</li></ul>	Do not spray water on the air conditioners or immerse the air conditioners in water. <ul style="list-style-type: none"><li>• Water on the unit presents a risk of electric shock.</li></ul>
Make sure the wires are not subject to tension. <ul style="list-style-type: none"><li>• If the wires are too taut, they may break or generate heat and/or smoke and cause fire.</li></ul>	Periodically check the platform on which is placed for damage to prevent the unit from falling. <ul style="list-style-type: none"><li>• If the unit is left on a damaged platform, it may topple over, causing injury.</li></ul>
Install a breaker for current leakage at the power source to avoid the risk of electric shock. <ul style="list-style-type: none"><li>• Without a breaker for current leakage, there is a risk of electric shock, smoke or fire.</li></ul>	When installing draining pipes, follow the instructions in the manual, and make sure that they properly drain water so as to avoid dew condensation. <ul style="list-style-type: none"><li>• If not installed properly, they may cause water leaks and damage the furnishings.</li></ul>
Use breakers and fuses (electrical current breaker, remote switch<switch+Type-B fuse>,molded case circuit breaker) with a proper current capacity. <ul style="list-style-type: none"><li>• The use of large-capacity fuses, steel wire, or copper wire may damage the unit or cause smoke or fire.</li></ul>	Properly dispose of the packing materials. <ul style="list-style-type: none"><li>• Things such as nails may be included in the package. Dispose of them properly to prevent injury.</li><li>• Plastic bags present a choking hazard to children. Tear up the plastic bags before disposing of them to prevent accidents.</li></ul>

## Before the Test Run

<b>⚠ Caution</b>	
Do not operate switches with wet hands to avoid electric shock.	Do not turn off the power immediately after stopping the unit. <ul style="list-style-type: none"><li>• Allow for at least five minutes before turning off the unit, otherwise the unit may leak water or experience other problems.</li></ul>
Do not touch the refrigerant pipes with bare hands during and immediately after operation. <ul style="list-style-type: none"><li>• Depending on the state of the refrigerant in the system, certain parts of the unit such as the pipes and compressor may become very cold or hot and may subject the person to frost bites or burning.</li></ul>	Do not operate the unit without air filters. <ul style="list-style-type: none"><li>• Dust particles in the air may clog the system and cause malfunction.</li></ul>

# Read Before Installation

## Items to Be Checked

- (1). Verify the type of refrigerant used by the unit to be serviced. Refrigerant Type: R410A
- (2). Check the symptom exhibited by the unit to be serviced. Look in this service handbook for symptoms relating to the refrigerant cycle.
- (3). Be sure to carefully read the safety precautions at the beginning of this document.
- (4). If there is a gas leak or if the remaining refrigerant is exposed to an open flame, a noxious gas hydrofluoric acid may form. Keep workplace well ventilated.

## CAUTION

- Install new pipes immediately after removing old ones to keep moisture out of the refrigerant circuit.
- Chloride in some types of refrigerants such as R22 will cause the refrigerating machine oil to deteriorate.

## Necessary Tools and Materials

Prepare the following tools and materials necessary for installing and servicing the unit.

Necessary tools for use with R410A(Adaptability of tools that are for use with R22 and R407C).

### 1. To be used exclusively with R410A ( Not to be used if used with R22 or R407C )

Tools/Materials	Use	Notes
Gauge Manifold	Evacuating,refrigerant charging	5.09MPa on the High-pressure side.
Charging Hose	Evacuating, refrigerant charging	Hose diameter larger than the conventional ones.
Refrigerant Recovery Equipment	Refrigerant recovery	
Refrigerant Cylinder	Refrigerant charging	Write down the refrigerant type. Pink in color at the top of the cylinder.
Refrigerant Cylinder Charging Port	Refrigerant charging	Hose diameter larger than the conventional ones.
Flare Nut	Connecting the unit to piping	Use Type-2 Flare nuts.

### 2. Tools and materials that may be used with R410 with some restrictions

Tools/Materials	Use	Notes
Gas leak detector	Detection of gas leaks	The ones for HFC type refrigerant may be used.
Vacuum Pump	Vacuum drying	May be used if a reverse flow check adaptor is attached.
Flare Tool	Flare machining of piping	Changes have been made in the flare machining dimension.Refer to the next page.
Refrigerant Recovery Equipment	Recovery of refrigerant	May be used if designed for use with R410A.

### 3. Tools and materials that are used with R22 or R407C that can also be used with R410A

Tools/Materials	Use	Notes
Vacuum Pump with a Check Valve	Vacuum drying	
Bender	Bending pipes	
Torque Wrench	Tightening flare nuts	Only $\phi 12.70$ (1/2") and $\phi 15.88$ (5/8") have a larger flare machining dimension.
Pipe Cutter	Cutting pipes	
Welder and Nitrogen Cylinder	Welding pipes	
Refrigerant Charging Meter	Refrigerant charging	
Vacuum Gauze	Checking vacuum degree	

### 4. Tool and materials that must not be used with R410A

Tools/Materials	Use	Notes
Charging Cylinder	Refrigerant Charging	Must not be used with R410-type units.

Tools for R410A must be handled with special care, and keep moisture and dust from entering the cycle.

# Read Before Installation

## Piping Materials

### Types of Copper Pipes (Reference)

Maximum Operation Pressure	Applicable Refrigerants
3.4MPa	R22, R407C
4.15MPa	R410A

- Use pipes that meet the local standards.

## Piping Materials/Radial Thickness

Use pipes made of phosphorus deoxidized copper.

Since the operation pressure of the units that use R410A is higher than that of the units for use with R22, use pipes with at least the radial thickness specified in the chart below. (Pipes with a radial thickness of 0.7mm or less may not be used.)

Size(mm)	Size(inch)	Radial Thickness(mm)	Type
Φ 6.35	1/4"	0.8t	Type-O pipes
Φ 9.52	3/8"	0.8t	
Φ 12.7	1/2"	0.8t	
Φ 15.88	5/8"	1.0t	
Φ 19.05	3/4"	1.0t	Type-1/2H or Hpipes

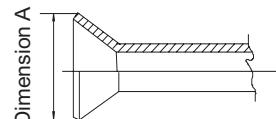
- Although it was possible to use type-O for pipes with a size of up to Φ 19.05(3/4") with conventional refrigerants, use type-1/2H pipes for units that use R410A.(Type-O pipes may be used if the pipe size is Φ19.05 and the radial thickness is 1.2t.)
- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

## Flare Machining (type-O and OL only)

The flare machining dimensions for units that use R410A is larger than those for units that use R22 in order to increase air tightness.

### Flare Machining Dimension(mm)

External dimension of pipes	Size	Dimension A	
		R410A	R22
Φ6.35	1/4"	9.1	9.0
Φ9.52	3/8"	13.2	13.0
Φ12.7	1/2"	16.6	16.2
Φ15.88	5/8"	19.7	19.4
Φ19.05	3/4"	24.0	23.3



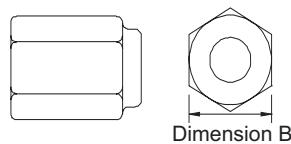
If a clutch type flare tool is used to machine flares on units that use R410A, make the protruding part of the pipe between 1.0 and 1.5mm. Copper pipe gauge for adjusting the length of pipe protrusion is useful.

## Flare Nut

Type-2 flare nuts instead of type-1 nuts are used to increase the strength. The size of some of the flare nuts have also been changed.

### Flare nut dimension(mm)

External dimension of pipes	Size	Dimension B	
		R410A(Type2)	R22(Type1)
Φ6.35	1/4"	17.0	17.0
Φ9.52	3/8"	22.0	22.0
Φ12.7	1/2"	26.0	24.0
Φ15.88	5/8"	29.0	27.0
Φ19.05	3/4"	36.0	36.0

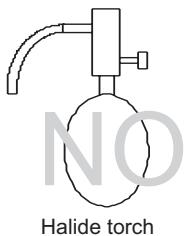


- The table shows the standards in Japan. Using this table as a reference, choose pipes that meet the local standards.

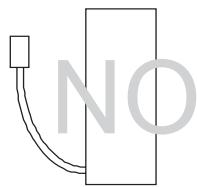
# Read Before Installation

## Air Tightness Test

No changes from the conventional method. Note that a refrigerant leakage detector for R22 or R407C cannot detect R410A leakage.



Halide torch



R22 or R407C leakage detector

### Items to be strictly observed :

1. Pressurize the equipment with nitrogen up to the design pressure and then judge the equipment's air tightness, taking temperature variations into account.
2. When investigating leakage locations using a refrigerant, be sure to use R410A.
3. Ensure that R410A is in a liquid state when charging.

### Reasons:

Use of oxygen as the pressurized gas may cause an explosion.

Charging with R410A gas will lead the composition of the remaining refrigerant in the cylinder to change and then this refrigerant can not be used.

## Vacuuming

### 1. Vacuum pump with check valve

A vacuum pump with a check valve is required to prevent the vacuum pump oil from flowing back into the refrigerant circuit when the vacuum pump power is turned off (power failure). It is also possible to attach a check valve to the actual vacuum pump afterwards.

### 2. Standard degree of vacuum for the vacuum pump

Use a pump which reaches 65Pa or below after 5 minutes of operation.

In addition, be sure to use a vacuum pump that has been properly maintained and oiled using the specified oil. If the vacuum pump is not properly maintained, the degree of vacuum may be too low.

### 3. Required accuracy of the vacuum gauge

Use a vacuum gauge that can measure up to 650Pa. Do not use a general gauge manifold since it cannot measure a vacuum of 650Pa.

### 4. Evacuating time

Evacuate the equipment for 1 hour after 650Pa has been reached.

After evacuating, leave the equipment for 1 hour and make sure the that vacuum is not lost.

### 5. Operating procedure when the vacuum pump is stopped

In order to prevent a backflow of the vacuum pump oil, open the relief valve on the vacuum pump side or loosen the charge hose to draw in air before stopping operation. The same operating procedure should be used when using a vacuum pump with a check valve.

## Charging Refrigerant

R410A must be in a liquid state when charging.

### Reasons:

R410A is a pseudo-azeotropic refrigerant (boiling point R32= -52°C, R125= -49°C) and can roughly be handled in the same way as R22; however, be sure to fill the refrigerant from the liquid side, for doing so from the gas side will somewhat change the composition of the refrigerant in the cylinder.

### Note

- In the case of a cylinder with a siphon, liquid R410A is charged without turning the cylinder up side down. Check the type of cylinder before charging.

### Remedies to be taken in case of a refrigerant leak

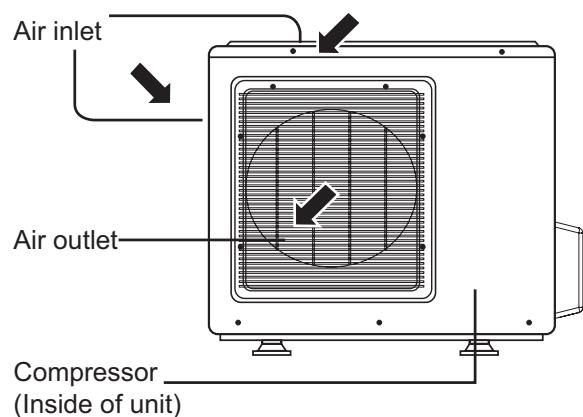
When refrigerant leaks, additional refrigerant may be charged. (Add the refrigerant from the liquid side)

## Characteristics of the Conventional and the New Refrigerants

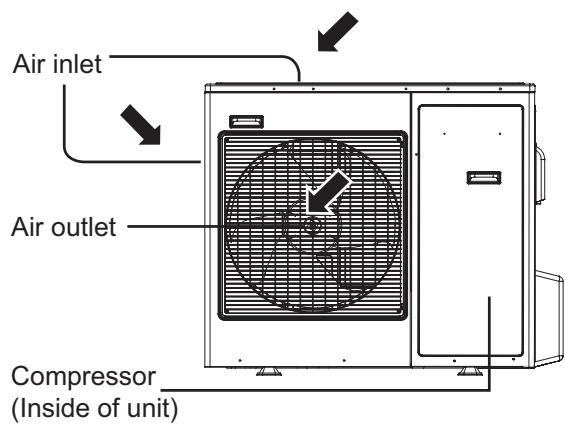
- Because R410A is a simulated azeotropic refrigerant, it can be handled in almost the same manner as a single refrigerant such as R22. However, if the refrigerant is removed in the vapor phase, the composition of the refrigerant in the cylinder will somewhat change.
- Remove the refrigerant in the liquid phase. Additional refrigerant may be added in case of a refrigerant leak.

# Name of Parts

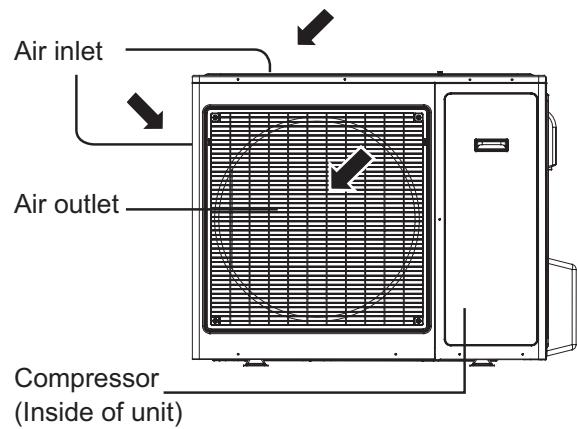
24K



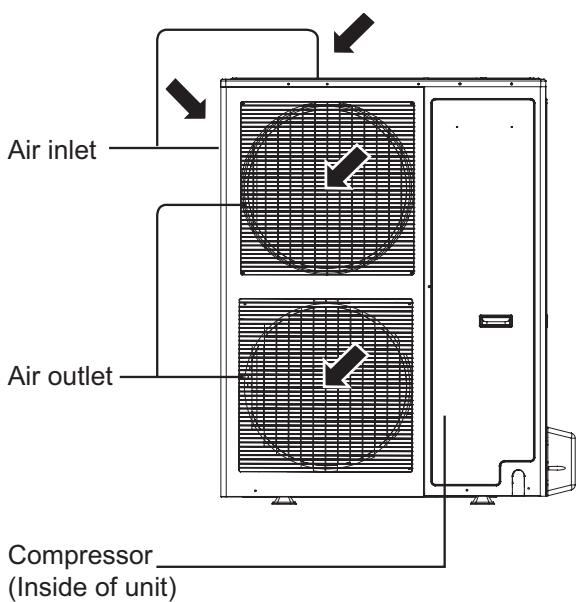
28K 36K



48K(1 phase) 48K(3 phase)



60K



# Installation Procedure

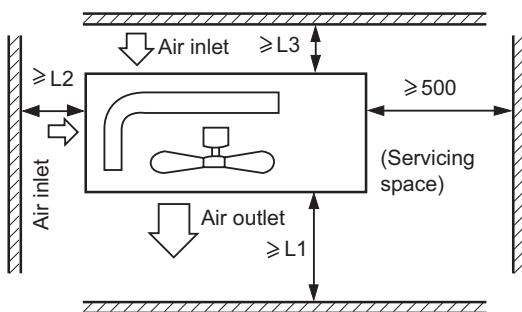
## Installation of Outdoor Unit

### 1. Selection of the place of installation

Select the place of installation satisfying the following conditions and, at the same time, obtain a consent from the client or user.

- Place where air circulates.
- Place free from heat radiation from other heat sources.
- Place where drain water may be discharged.
- Place where noise and hot air may not disturb the neighborhood.
- Place where there is not heavy snowfall in the winter time.
- Place where obstacles do not exist near the air inlet and air outlet .
- Place where the air outlet may not be exposed to a strong wind.
- Place surrounded at four sides are not suitable for installation. A 1m or more of overhead space is needed for the unit.
- Avoid mounting guide-louvers to the place where short-circuit is a possibility.
- When installing several units, secure sufficient suction space to avoid short circuiting.

### Open space requirement around the unit



Distance	Case I	Case II	Case III
L1	open	open	500 mm
L2	300 mm	300 mm	open
L3	150 mm	300 mm	150 mm

#### Note :

- (1) Fix the parts with screws.
- (2) Don't intake the strong wind directly to the outlet air-flow hole.
- (3) A one meter distance should be kept from the unit top.
- (4) Don't block the surroundings of the unit with sundries.
- (5) If the outdoor unit is installed in a place that is exposed to the wind, install the unit so that the outlet grid is NOT pointing in the direction of the wind.

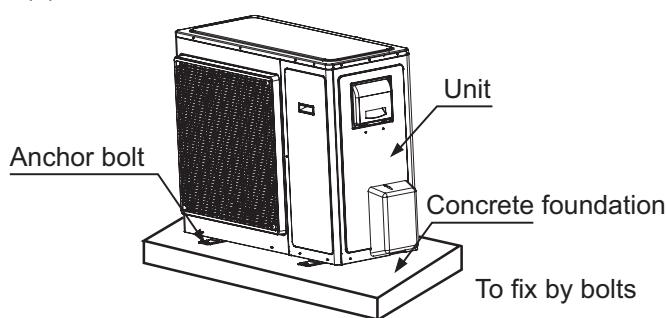


### 2. Installation of outdoor unit

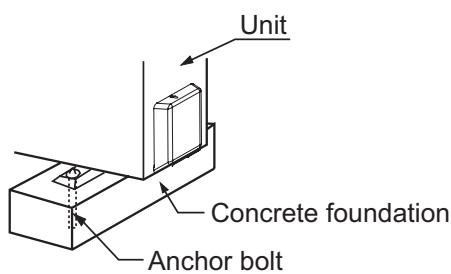
Fix the unit on the foundation in a proper way according to the condition of the installation place, referring to the following information.

- Give enough room for the concrete foundation to fix by anchor bolts.
- Place the concrete foundation deep enough.
- Install the unit so that the angle of inclination must be less than 3 degrees.

(a) Concrete foundation



(b) Foundation anchor

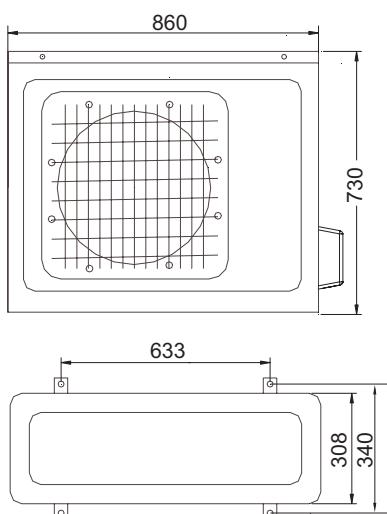


# Installation Procedure

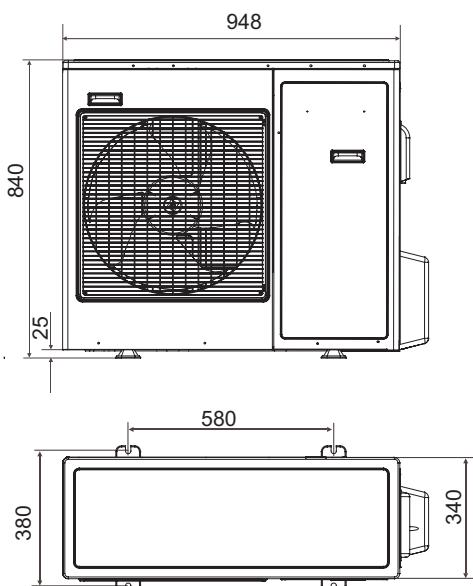
## Installation of Outdoor Unit

### 3. Installation dimension (Unit:mm)

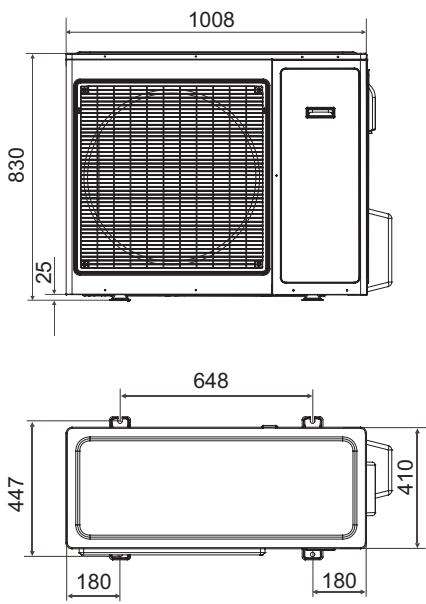
24K



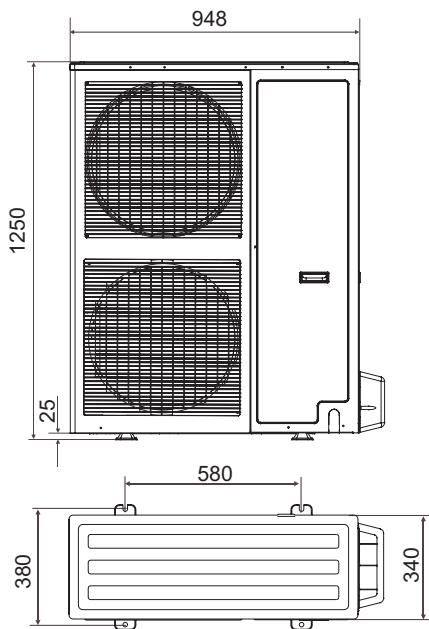
28K 36K



48K(1 phase) 48K(3 phase)



60K

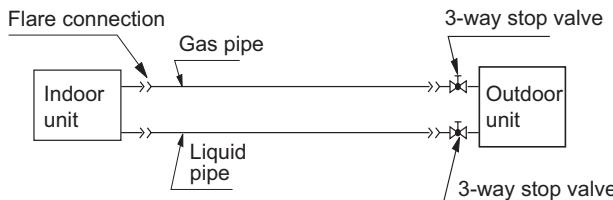


# Installation Procedure

## Piping Connection

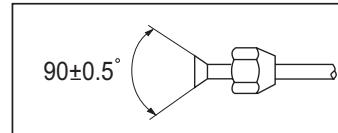
### 1. Piping diagram

24K 28K 36K 48K(1 phase) 48K(3 phase) 60K



### 2. Piping size

24K 28K 36K	Liquid pipe	$\phi 9.52 \times 0.8\text{mm}$
	Gas pipe	$\phi 15.88 \times 1.0\text{mm}$
48K(1 phase) 48K(3 phase) 60K	Liquid pipe	$\phi 9.52 \times 0.8\text{mm}$
	Gas pipe	$\phi 19.05 \times 1.0\text{mm}$



- Install the removed flare nuts to the pipes to be connected, then flare the pipes.

### 3. Limitations for one way piping length and vertical height difference

Model	One way piping length	Vertical height difference (between indoor and outdoor)
24K 28K 36K	less than 30 m	less than 20 m
48K(1 phase) 48K(3 phase) 60K	less than 50 m	less than 30 m

### Precautions for refrigerant piping

- Do not twist or crush piping.
- Be sure that no dust is mixed in piping.
- Bend piping with as wide angle as possible.
- Keep insulating both gas and liquid piping.
- Check flare-connected area for gas leakage.

Spanner



Joint

Spanner



Nut

### 4. Piping connection method

- Apply refrigerant oil to the joint and the flange.
- To bend a pipe, give the roundness as possible not to crush the pipe.
- When connecting pipe, hold the pipe centre to centre and then screw nut on by hand, refer to Fig.
- Be careful not to let foreign matters, such as sands enter the pipe.

Pipe diameter	Fastening torque (N.m)
Liquid pipe $\phi 6.35\text{mm}$	14.2-17.2
Liquid pipe $\phi 9.52\text{mm}$	32.7-39.9
Gas pipe $\phi 12.7\text{mm}$	49.5-60.3
Gas pipe $\phi 15.88\text{mm}$	61.8-75.4
Gas pipe $\phi 19.05\text{mm}$	97.2-118.6

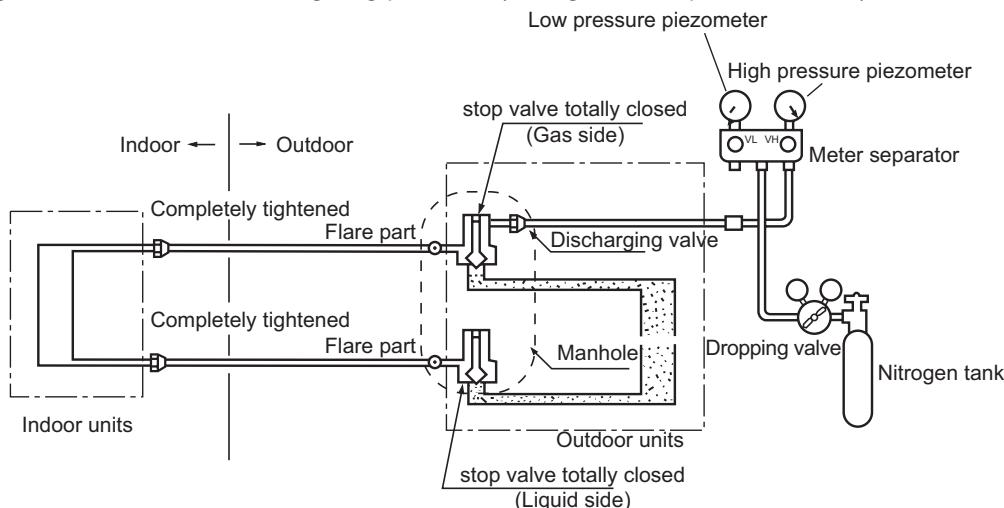
Forced fastening without centering may damage the threads and cause a gas leakage.

# Installation Procedure

## Air Tightness Test

After finishing connection of refrigerant pipe, it shall perform air tightness test.

- The air tightness test adopts nitrogen tank to give pressure according to the pipe connection mode as the following figure shown.
- The gas and liquid valve are all in close state. In order to prevent the nitrogen entering the circulation system of outdoor unit, tighten the valve rod before giving pressure (both gas and liquid valve rods).



1) Pressurize for over 3 minutes at 0.3MPa (3.0 kg/cm<sup>2</sup>g).

2) Pressurize for over 3 minutes at 1.5MPa (15 kg/cm<sup>2</sup>g). A large leakage will be found.

3) Pressurize for about 24 hours at 3.0MPa (30 kg/cm<sup>2</sup>g). A small leakage will be found.

- Check if the pressure drops

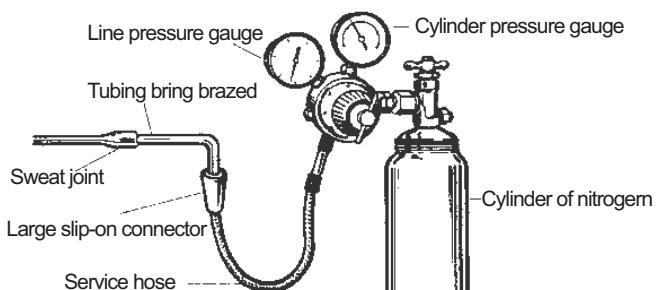
If the pressure does not drop, then pass.

If the pressure drops, then please check the leaking point.

When pressurizing for 24 hours, a variation of 1°C in the ambient temperature will cause a variation of 0.01MPa(0.1kg/cm<sup>2</sup>g) in pressure. It shall be corrected during test.

- Checking the leaking point

In 1) to 3) steps, if the pressure drops, check the leakage in each joint by listening, touching and using soap water etc. to identify the leaking point. After confirming the leaking point, welding it again or tighten the nut tightly again.



# Installation Procedure

## Additional Refrigerant Charge

When the total length (L) of the two indoor units' connecting pipe is less than 5m, it is unnecessary to charge additional refrigerant.

If the connecting pipe (L) exceeds 5m, it shall charge M(g) additional refrigerant per meter.

That is: Refrigerant charging amount = (L-5m) × 45 (g/m)

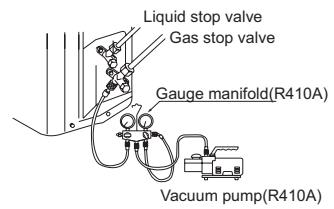
- Only in COOLING operation can charge the additional refrigerant.
- When charging, the refrigerant shall be charged from the charging nozzle of low pressure valve.
- Be carefull when charging refrigerant, do not let the air mix into the system, and must charge the additional refrigerant in liquid state.

# Installation Procedure

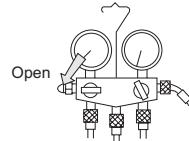
## Vacuuming

### Piping vacuum method: to use vacuum pump

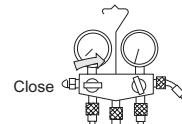
1. Detach the service port's cap of gas stop valve, the valve rod's cap for liquid stop valve and gas stop valve, and connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.



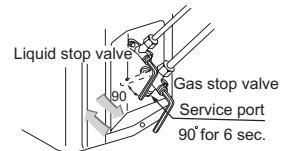
2. Open the handle at low in gaugemanifold, and operate vacuum pump. If the scale-moves of gauge (low) reach vacuum condition in a moment, check the step 1 again.



3. Vacuumize for over 15min. And check the level gauge which should read - 0.1MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in the vacuum pump. Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, then return to the beginning of the step 3.

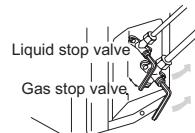


4. Open the valve rod for the liquid stop valve to an angle of anticlockwise 90 degree. After 6 seconds, close the liquid stop valve and make the inspection of gas leakage.

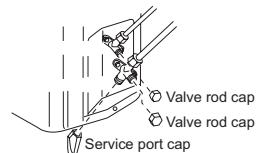


5. No gas leakage? In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed the step 6. If it does not stop gas leakage, discharge whole refrigerants from the service port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

6. Detach the charge hose from the service port, open liquid stop valve and gas stop valve. Turn the valve rod anticlockwise until hitting lightly.



7. To prevent the gas leakage, turn the service ports cap, the valve rodis cap for liquid stop valve and gas stop valve a little more than the point where the torque increases suddenly.



### CAUTION:

If the refrigerant of the air conditioner leaks, it is necessary to make all the refrigerant out. Vacuumize first, then charge the liquid refrigerant into air conditioner according to the amount marked on the nameplate.

### **WARNING!**

#### **DANGER OF BODILY INJURY OR DEATH**

- TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS.
- GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

### **Precautions for Electrical wiring**

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

### **Selection of size of power supply and interconnecting wires**

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item Model	Phase	Circuit breaker		Power source wire size (minimum) (mm <sup>2</sup> )	Earth leakage breaker	
		Switch breaker (A)	Overcurrent protector rated capacity (A)		Switch breaker(A)	Leak current(mA)
24K	1	40	26	6.0	40	30
28K 36K 48K(1 phase)	1	40	30	6.0	40	30
48K(3 phase) 60K	3	30	20	4.0	30	30

- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
- If the fuse of control box is broken, please change it with the type of T25A/450VAC;
- If the fuse of control PC board is broken, please change it with the type of T3.15A/250VAC. But for 28K,36K,48K(1 phase),48K(3 phase),60K, the type is T6.3A/250VAC.
- The wiring method should be in line with the local wiring standard.
- The power cable and connecting cable should be self-provided.
- All the cables shall have got the European authentication certificate. During installation, when the connecting cables break off, it must be assured that the grounding wire is the last one to be broken off.
- The breaker of the air conditioner should be all-pole switch; and the distance between its two contacts should not be no less than 3mm. Such means for disconnection must be incorporation in the fixed wiring.
- The distance between its two terminal blocks of indoor unit and outdoor unit should not be over 5m. If exceeded, the diameter of the wire should be enlarged according to the local wiring standard.
- A leakage breaker must be installed.

### **The specification of power cable**

For models 28K,36K,48K(1 phase), the power cable should be H05RN-F 3G 6.0mm<sup>2</sup>.

For models 48K(3 phase), 60K, the power cable should be H07RN-F 5G 4.0mm<sup>2</sup>.

# Installation Procedure

## Electrical Wiring

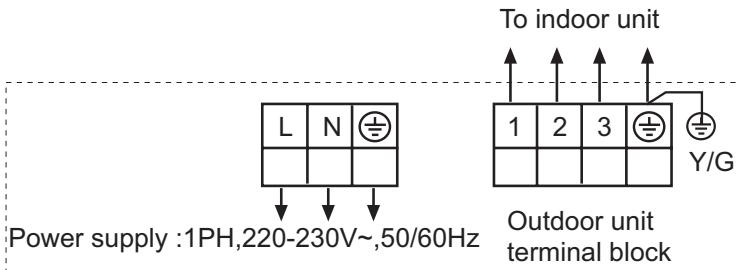
### Wiring procedure

- 1) Remove set screws on the side before taking off the front panel toward the direction.
- 2) Connect wires to the terminal block correctly and fix the wires with a wire clamp equipped nearby the terminal block.
- 3) Route the wires in a proper way and penetrate the wires through the opening for electrical wiring on the side panel.

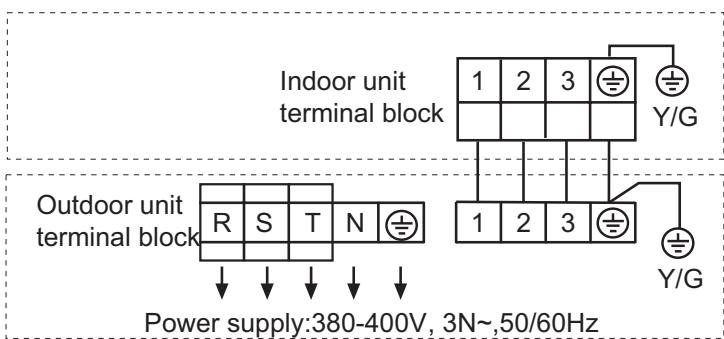
### WARNING:

*INTERCONNECTING WIRES MUST BE WIRED ACCORDING TO FIGURE BELOW. INCORRECT WIRING MAY CAUSE EQUIPMENT DAMAGE.*

24K 28K 36K 48K(1 phase)



48K(3 phase) 60K



# Cassette Installation Procedure

## ① BEFORE INSTALLATION <Don't discard any accessories until comp>

- Determine the way to carry unit to installation place.
- Don't remove packing until unit reaches installation place.
- If unpacking is unavoidable, protect unit properly.

## ② SELECTION OF INSTALLATION PLACE

(1) Installation place shall meet the following and agreed by customers:

- Place where proper air flow can be ensured.
- No block to air flow.
- Water drainage is smooth.
- Place strong enough to support unit weight.
- Place where inclination is not evident on ceiling.
- Enough space for maintenance.
- Indoor and outdoor unit piping length is within limit. (Refer to Installation Manual for outdoor unit.)
- Indoor and outdoor unit, power cable, inter unit cable are at least 1 m away from T.V. radop. This is helpful to avoid picture disturbance and noise. (Even if 1 m is kept, noise can still appear if radio wave is strong)

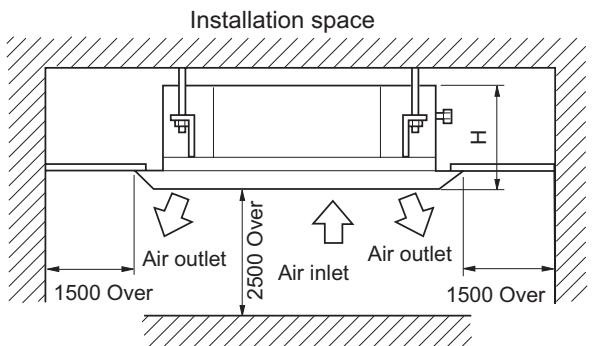
(2) Ceiling height

Indoor unit can be installed on ceiling of 2.5-3m in height. (Refer to Foeld setting and Installation Manual of ornament panel.)

(3) Install suspending bolt.

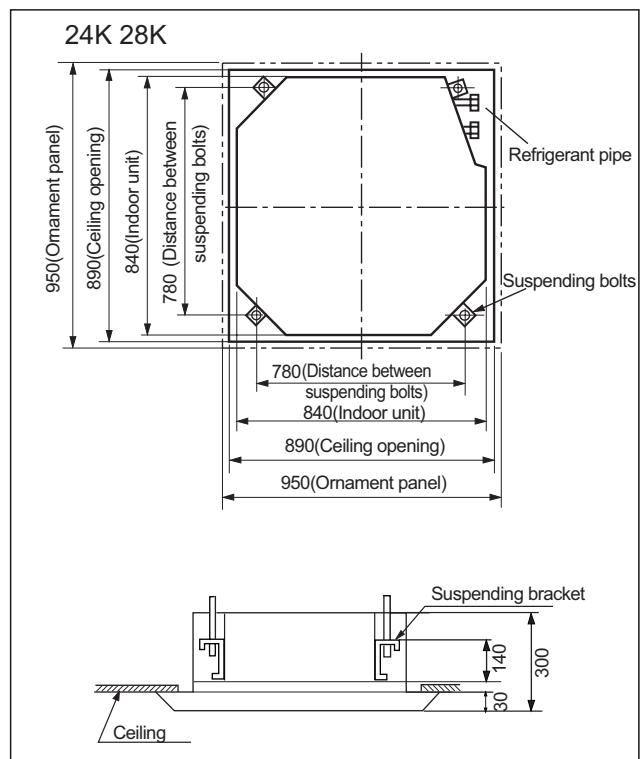
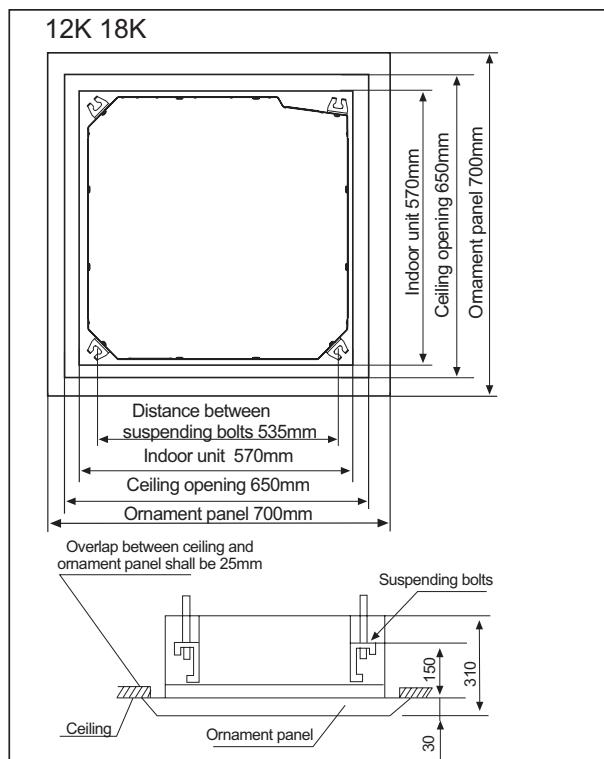
Check if the installation place is strong enough to hold weight. Take necessary measures in case it is not safe. (Distance between holes are marked on paper pattern. Refer to paper pattern for place need be reinforced)

Model	H
12K 18K 36K 48K 60K	310
24K 28K	300



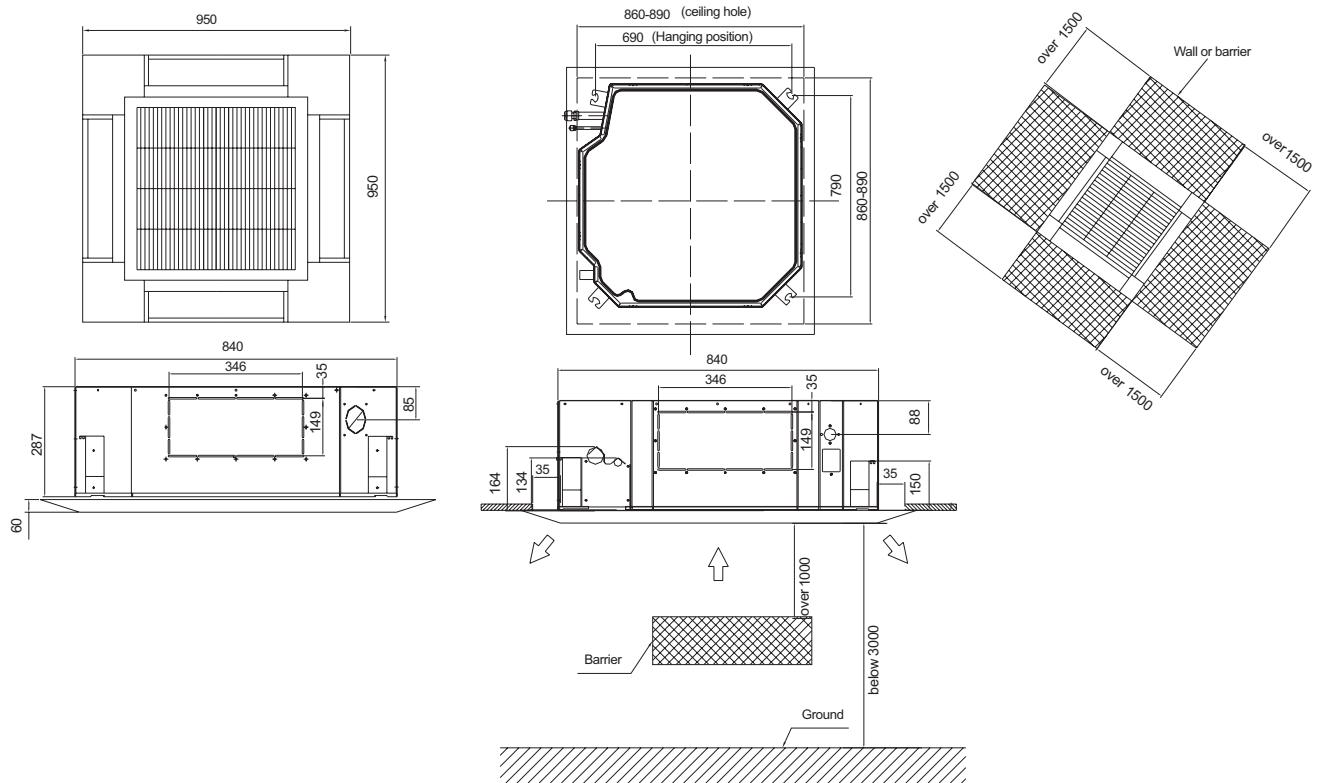
## ③ PREPARATION FOR THE INSTALLATION

(1) Position of ceiling opening between unit and suspending bolt.

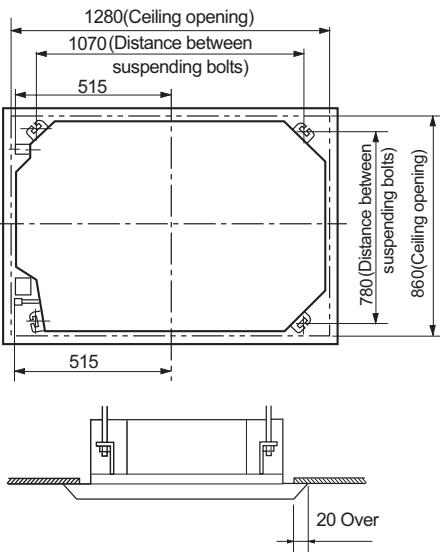


# Installation Procedure

36K 48K



60K



Note:

Dimension of ceiling opening marked with \* can be as large as 910mm, but the matching part of ceiling with ornament panel shall be over 20mm.

Indoor unit	Panel
12K 18K	PB-700IB
24K 28K 36K 48K	PB-950JB
60K	PB-1340IB

# Installation Procedure

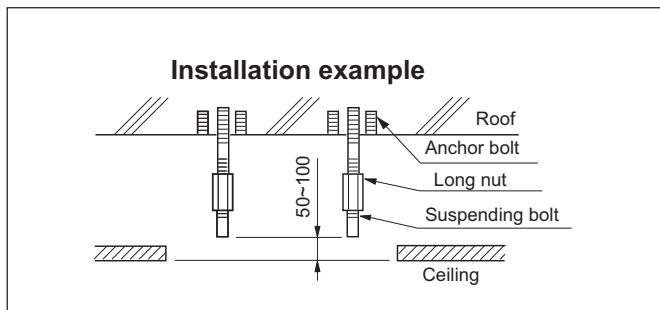
(2) Cut an opening in ceiling for installation if necessary. (when ceiling already exists.)

- Refer to paper pattern for dimension of ceiling hole.
- Connect all pipings (refrigerant, water drainage), wirings (inter unit cable) to indoor unit, before installation.
- Cut a hole in ceiling, may be a frame should be used to ensure a smooth surface and to prevent vibration.
- Contact your real estate dealer

(3) Install a suspending bolt. (Use a M10 bolt)

- To support the unit weight, anchor bolt shall be used in the case of already exists ceiling. For new ceiling, use builtin type bolt or parts prepared in the field.
- Before going on installing adjust space between ceiling.

**Note:** All the above mentioned parts shall be prepared in field.



## ④ INSTALLATION OF INDOOR UNIT

### In the case of new ceiling

(1) Install unit temporally

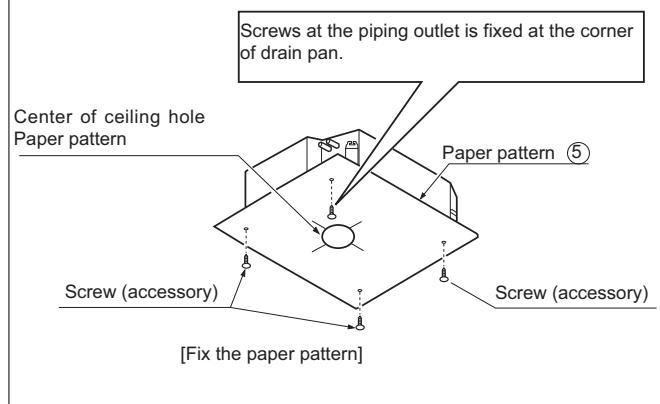
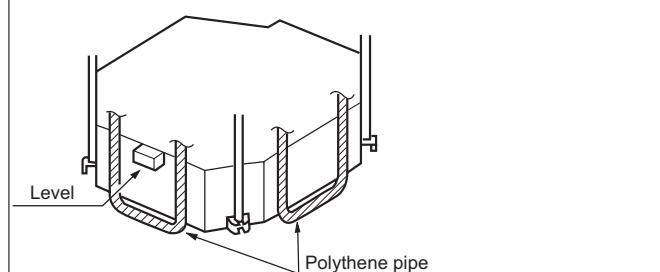
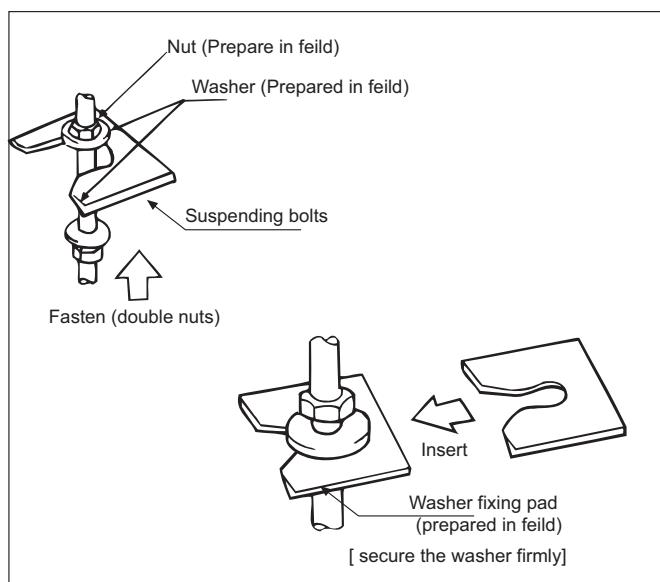
Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket.

(2) As for the dimensions of ceiling hole, see paper pattern. Ask your real estate dealer for details.

Center of the hole is marked on the paper pattern.

Center of the unit is marked on the card in the unit and on the paper pattern.

Mount paper pattern ⑤ onto unit using 3 screws ⑥ .Fix the corner of the drain pan at piping outlet.



### <After installation on the ceiling>

(3) Adjust unit to its right position. (Refer to preparation for the installation-(1))

(4) Check unit's horizontal level.

Watert pump and flating switch is installed inside indoor unit, check four corners of the unit for its level using horizontal compartor or PVC tube with water. (If unit is tilting against the direction of water drainage, problem may occur on floating switch, causing water leakage.)

(5) Remove the washer mountlting ② and tighten the nut above.

(6) Remove the paper pattern.

### In the case of ceiling already exists

(1) Install unit temporally

Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket. Fix the bracket firmly.

(2) Adjust the height and position of the unit.  
(Refer to preparation for the installation (1)).

(3) Proceed with ③ and ④ of "In the case of new ceiling".

# Installation Procedure

## ⑤ REFRIGERANT PIPING (As for outdoor piping, please refer to installation Manual of outdoor unit.)

- Outdoor is precharged with refrigerant.
- Be sure to see the Fig.1, when connecting and removing piping from unit.
- For the size of the flare nut, please refer to Table 1.
- Apply refrigerant oil at both inside and outside of flare nut. Tighten it hand tight 3-4 turns then tighten it.
- Use torque specified in Table 1. (Too much force may damage flare nut, causing gas leakage).
- Check piping joints for gas leakage. Insulate piping as shown in Fig. below.
- Cover joint of gas piping and insulator ⑦ with seal.

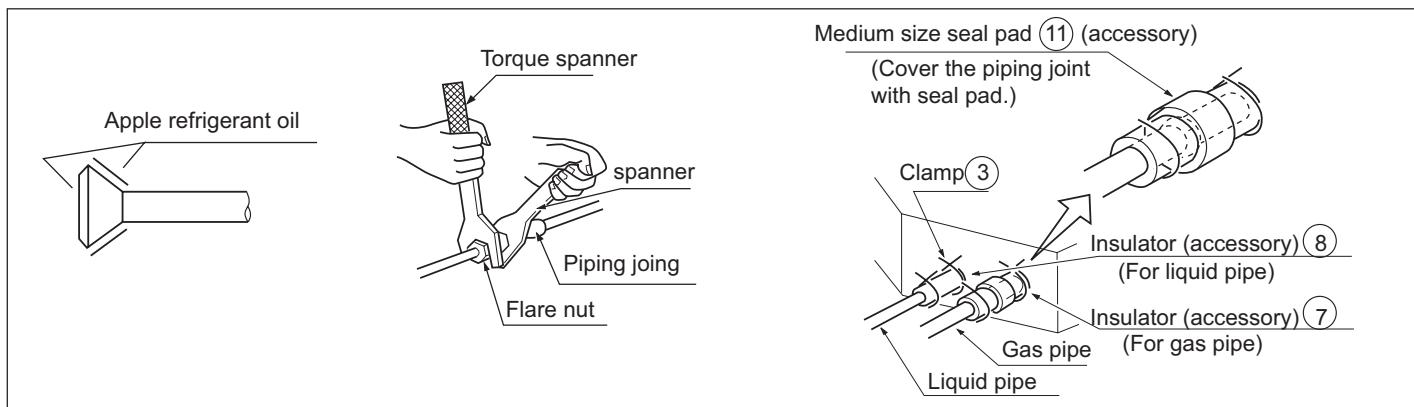


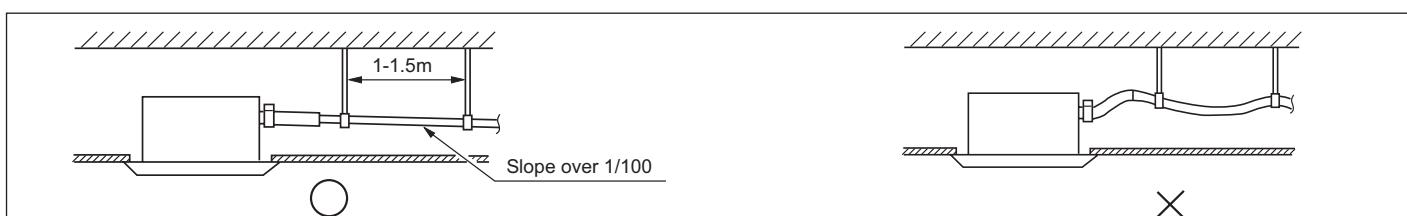
Table 1

Pipe size	Tighten torque	A(mm)	Flare shape
φ 6.35	1420~1720N.cm (144~176kgf.cm)	8.3~8.7	
φ 9.52	3270~3990N.cm (333~407kgf.cm)	12.0~12.4	
φ 12.7	4950~6030N.cm (490~500kgf.cm)	12.4~16.6	
φ 15.88	6180~7540N.cm (630~770kgf.cm)	18.6~19.0	

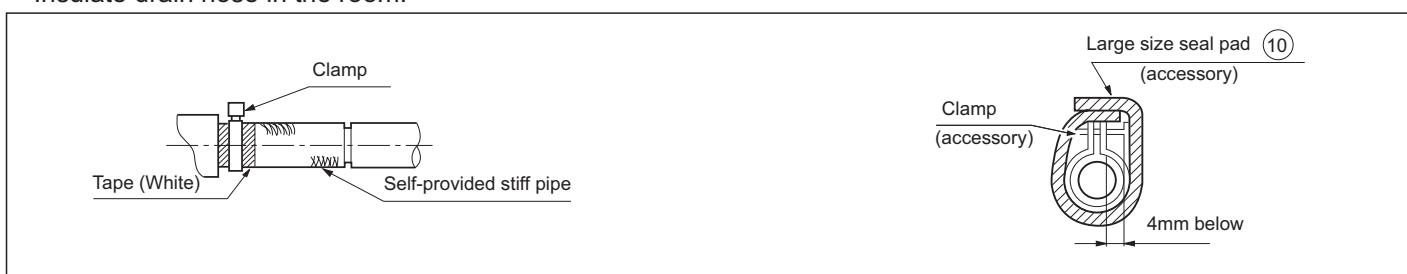
## ⑥ INSTALLATION OF WATER DRAINAGE PIPE

### (1) Install water drainage pipe

- Pipe dia. shall be equal or larger than that of unit piping.(pipe of polyethylen; size: 25mm; O.D:32mm)
- Drain pipe should be short, with a downward slope at least 1/100 to prevent air bag from happening.
- If downward slope can't be made, take other measures to lift it up.
- Keep a distance of 1-1.5m between suspending brackets, to make water hose straight.



- Use the self-provided stiff pipe and clamp ① with unit. Insert water pipe into water plug until it reaches the white tape. Tighten the clip until head of the screw is less than 4mm from hose.
- Wind the drain hose to the clip using seal pad ⑨ .
- Insulate drain hose in the room.

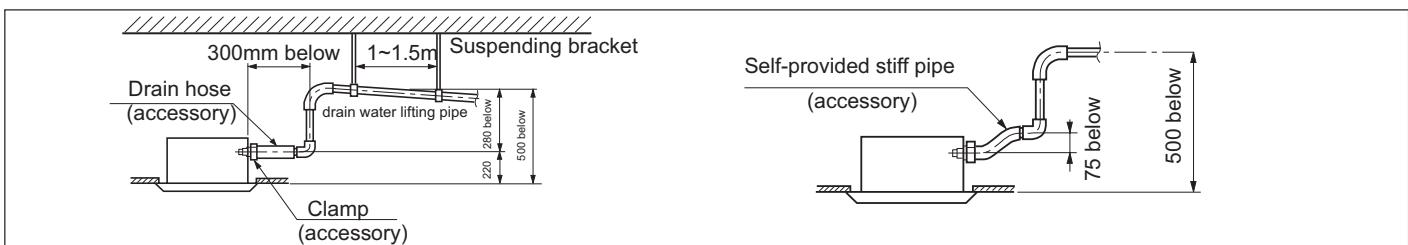


# Installation Procedure

## <Cautions for the drain water lifting pipe >

Installation height shall be less than 280mm.

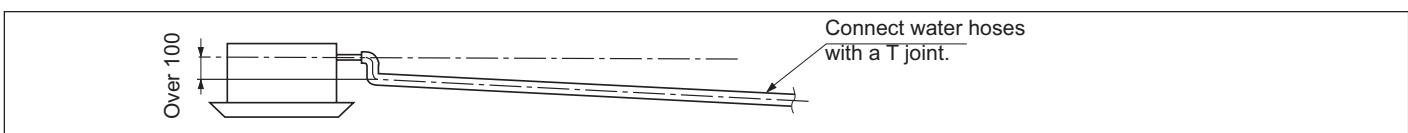
There should be a right angle with unit, 300mm from unit.



### Note:

The slope of water drain hose (1) shall be within 75mm, don't apply too much force on it.

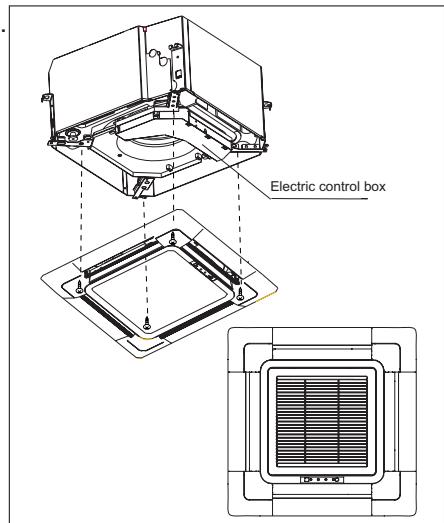
If several water hoses join together, do as per following procedures.



Specifications of the water hoses shall meet the requirements for the unit running.

(2) Check if water drainage is smooth after installation.

- Check whether indoor unit is horizontal with leveler or polythene pipe filled with water , and check that the dimension of the ceiling opening is correct. Take off the lever gauge before install the ornament panel.
- Fasten the screws to make the height difference between the two sides of indoor unit less than 5mm.
- First fix it with screws temporally.
- Fasten the two temporally fixing screws and other two, and tighten the four screws.
- Connect the wires of synchro-motor.
- Connect the wire of signal.
- If no response of remote controller, check whether the wiring is correct, restart remote controller 10 seconds after shut off power supply.



## <Limits of panel board installation>

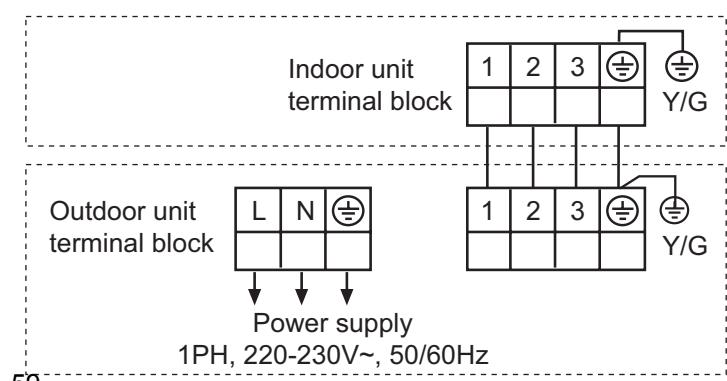
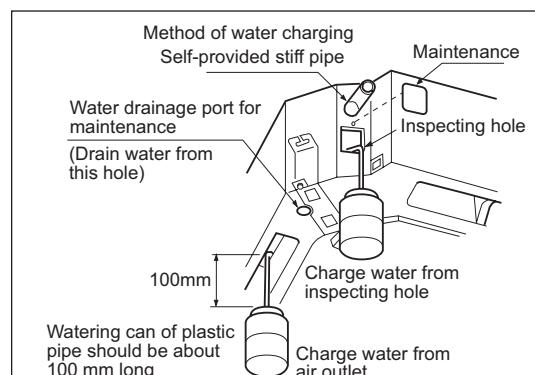
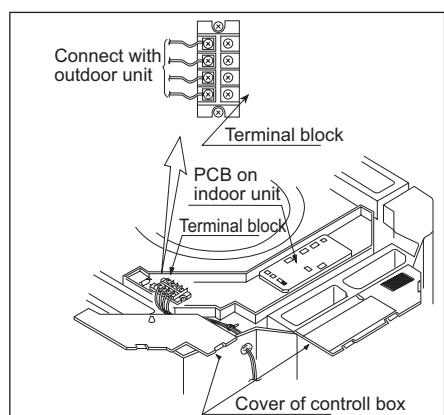
- Install the panel board in the direction shown in the figure. The incorrect direction will result in water leakage, meanwhile swing and signal receiving are displayed that cannot be connected.
- Charge, through air outlet or inspecting hole, 1200ccd water to see water drainage.

## After wiring

- Check water drainage in cooling operation.

## When wiring is not complete

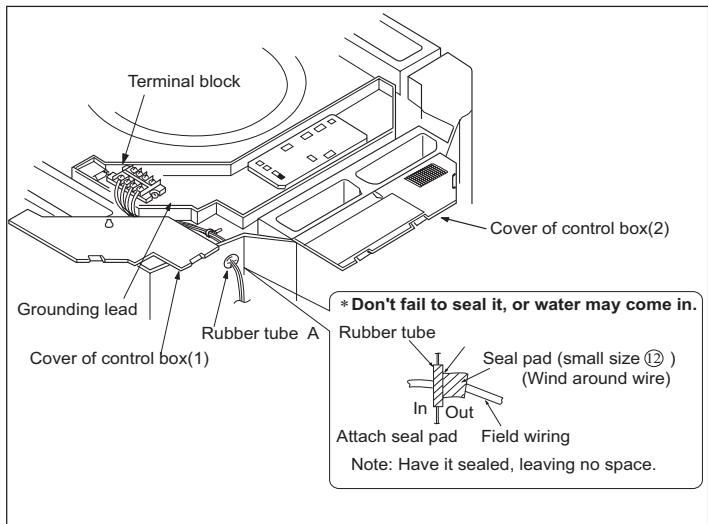
- Remove cover of control box, connect 1PH power to terminal 1 and 2 on terminal block.,use remote controller to operate the unit.
- Note, in this operation, fan will be running.
- Upon confirmation of a smooth water drainage, be sure to cut off power supply.



# Installation Procedure

## 7 WIRING

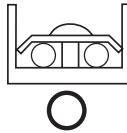
- All supplied parts, materials and wiring operation must conform to local code and regulations.
- Use copper wire only.
- When make wiring, please refer to wiring diagram also.
- All wiring work must be done by qualified electricians.
- A circuit breaker must be installed, which can cut power supply to all system.
- See Installation Manual of outdoor unit for specifications of wires, circuit breaker, switches and wiring etc.
- Connecting of unit  
Remove cover of switch box (1), drag wires into rubber tube A, then, after proper wiring with other wires, tighten clamp A. Connect wires of correct pole to the terminal block inside.  
Wind seal ⑫ around wires. (Be sure to do that, or, dew may occur).
- Upon connecting, replace control box cover (1) and (2).



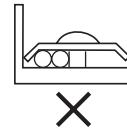
### ⚠ WARNING:

Observe the following when connecting power supply terminal block:  
Don't connect wires of different specifications to the same terminal block.  
(Loose wire may cause overheating of circuit)  
Connect wires of same specifications as shown in right Fig.

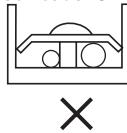
Connect wires of the same specifications at two sides.



Don't connect wires of the same specifications at one side.



Don't connect wires of the different specifications.



## 8 WIRING EXAMPLE

As for outdoor unit circuit, please see Installation Manual of outdoor unit.

Note: All electric wires have their own poles, poles must match that on terminal block.

### Pay special care to the following and check after installation

Item to be checked	Unproper installation may cause	Check
Is indoor unit firmly installed?	Unit might fall down, make vibration or noise.	
Is gas leakage check performed?	This may lead to gas shortage.	
Is unit properly insulated?	Dew or water drop may occur.	
Is water drainage smooth?	Dew or water drop may occur.	
Is power voltage meet that stipulated on the nameplate?	Problem may occur or parts got burned.	
Is wiring and piping correctly arranged?	Problem may occur or parts got burned.	
Is unit safely grounded?	There might be a danger of electric shock.	
Is wire size correct?	Problem may occur or parts got burned.	
Are there any obstacles on air inlet and outlet grill of indoor and outdoor unit?	This may cause poor cooling.	
Is record made for piping length and refrigerant charging amount?	It is hard to control refrigerant charging amount.	

**Attention:** after finishing installation, confirm no refrigerant leakage.

# Convertible type (12K/18K/24K) Installation Procedure

Please ask the dealer or specialist to install, never try by the users themselves. After the installation please be sure of the following conditions.

## ⚠ WARNING:

### • Please call dealer to install the air-conditioner.

Incorrect installation may cause water leaking, shock and fire hazard.

## ⚠ CAUTION:

### • Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near air-conditioner may cause fire hazard.

### • Installed electrical-leaking circuit breaker.

It easily cause electrical shock without circuit breaker.

### • Connect earthing wire.

Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, incorrect earthing may cause shock.

### • Use discharge pipe correctly to ensure efficient discharge.

Incorrect pipe use may cause water leaking.



Earthing

### • Wiring

Air-conditioner should be equipped with special power supply wire.

### • Location

#### • Air-conditioner should be located in well-ventilated and easily accessible place.

#### • Air-conditioner should not be located in the following places:

- (1) Places with machine oils or other oil vapours.
- (2) Seaside with high salt content in the air.
- (3) Near hot spring with high content of sulfide gases.
- (4) Area with frequent fluctuation of voltage e.g. factory, etc.

(5) In vehicles or ships.

- (6) Kitchen with heavy oil vapour or humidity.  
(7) Near the machine emitting electric-magnetic waves.  
(8) Places with acid, alkali vapour.

#### • Choose the following locations:

(1) Capable of supporting air conditioner weight, don't increase operating noise and vibration.

(2) Hot vapour from outdoor unit outlet and operating noise don't disturb neighbour.

(3) No obstacles around the outdoor unit outlet.

#### • TV, radio, acoustic appliances etc. are at least 1 m far away from the indoor unit, outdoor unit, power supply wire, connecting wire, pipes, otherwise images may be disturbed or noises be created.

#### • As required, take measures against heavy snow.

## INSTALLATION PARTS

The following installation parts are optional parts. Use them as required.

Optional parts

Adhesive tape	Drain hose
Saddle (L.S) with screws	Piping hole cover
Heat insulation material	Plastic clamp
Putty	

## SELECTING THE MOUNTING POSITION

Decide the mounting position with the customer as follows:

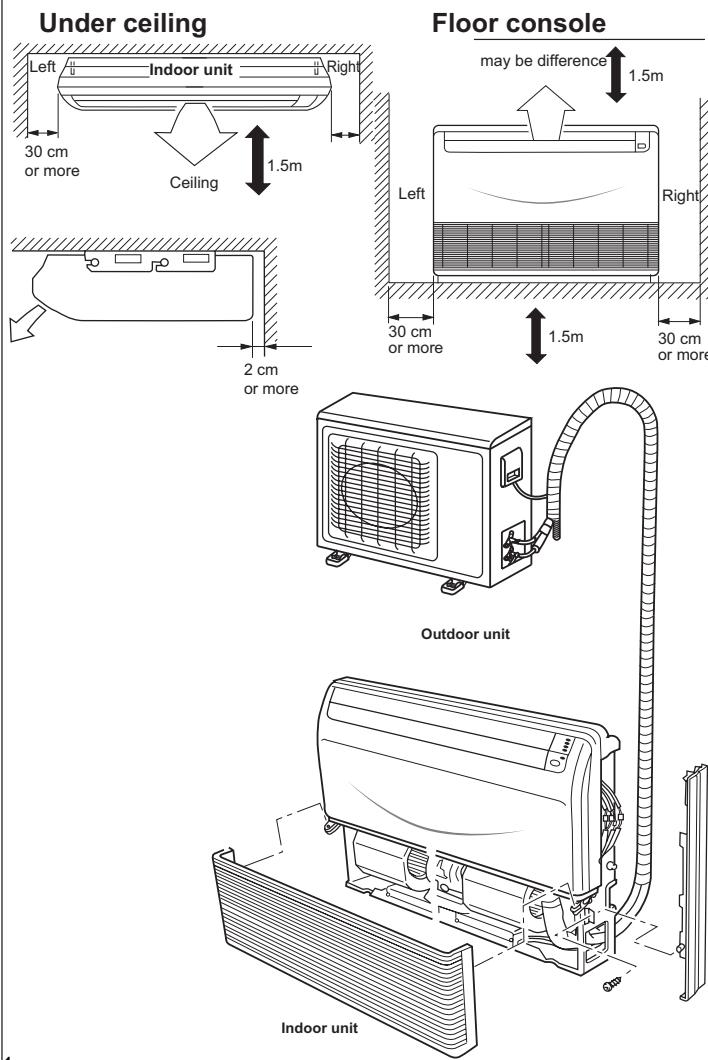
- (1) Install the indoor unit level on a strong wall, floor, ceiling which is not subject to vibration.
- (2) The inlet and outlet ports should not be obstructed. The air should be able to blow all over the room.
- (3) Install the unit near an electric outlet or special branch circuit.
- (4) Do not install the unit where it will be exposed to direct sunlight.
- (5) Install the unit where connection to the outdoor unit is easy.
- (6) Install the unit where the drain pipe can be easily installed.
- (7) Take servicing etc. into consideration and leave the spaces shown in the figure below. Also install the unit where the filter can be removed.

## ⚠ WARNING:

Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.

## ⚠ CAUTION:

- (1) Do not install where there is the danger of combustible gas leakage.
- (2) Do not install near heat sources.
- (3) If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.



# Installation Procedure

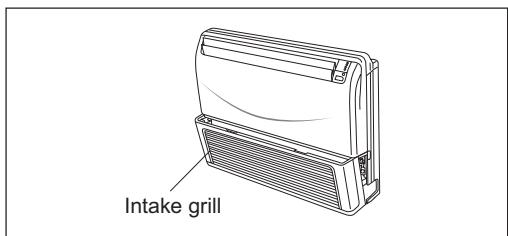
## PREPARING INDOOR UNIT INSTALLATION

### Remove the intake grill

Open the intake grill and remove the three or four or six screws.

#### Note:

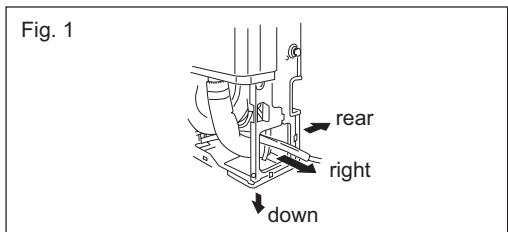
The main unit can be wired before the indoor unit is installed.  
Select the most appropriate installation order.



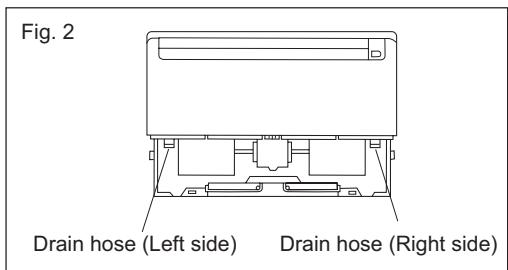
## A.FLOOR CONSOLE TYPE

### 1.Drilling for piping

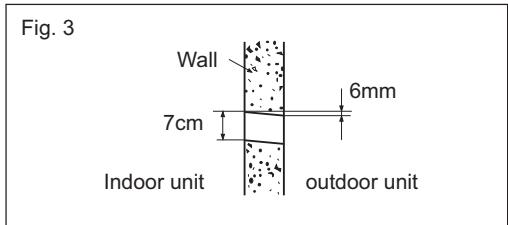
Select piping and drain directions. The piping and drain can be made in three directions as shown in the Fig.1.



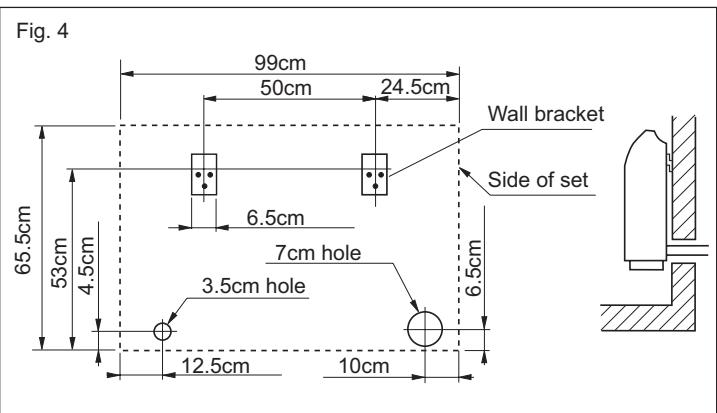
The drain hose can be connected to either the left or right side. (Fig.2)



When the directions are selected, drill a 7 cm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole at the position shown in Fig.3.

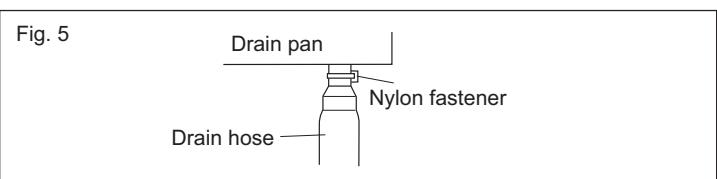


When installing set to wall, install the accessory wall bracket at the position shown in Fig. 4, and mount the set to it.

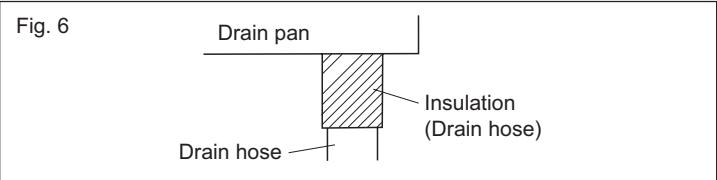


### 2. Installing drain hose

Select whether the drain hose will be connected to the left or right side (Fig.2). Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener (Fig.5).

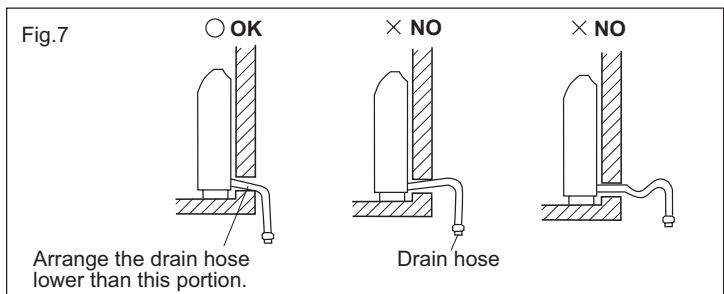


Wrap the insulation (drain hose) around the drain hose connection. (Fig.6)



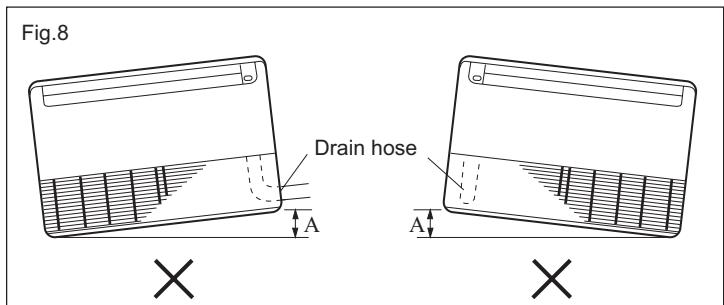
# Installation Procedure

Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit. (Fig.7)



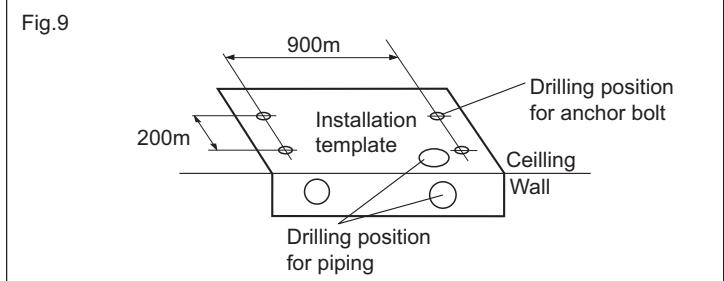
## ⚠ CAUTION:

Do not install the unit drain hose side is too high. Height A should be less than 5 mm.(Fig.8)



## B. UNDER CEILING TYPE

Using the installation template, drill holes for piping and anchor bolts(for holes).(Fig.9)

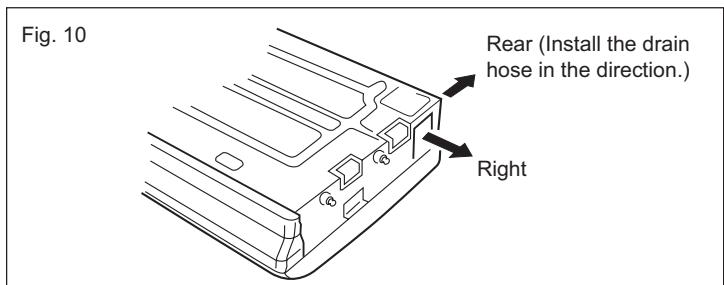


### 1.Drilling for piping

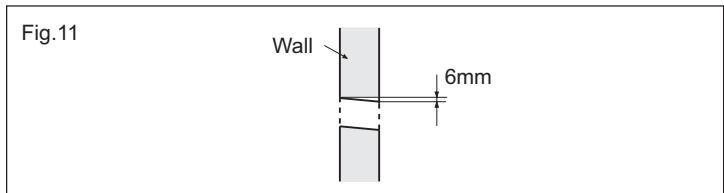
Select piping and drain directions. (Fig.10)

## ⚠ CAUTION:

Install the drain hose at the rear. It should not be installed on the top or right side.

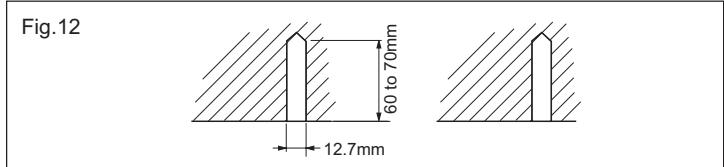


When the directions are selected, drill 80mm and 50mm or 150mm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. (Fig.11)

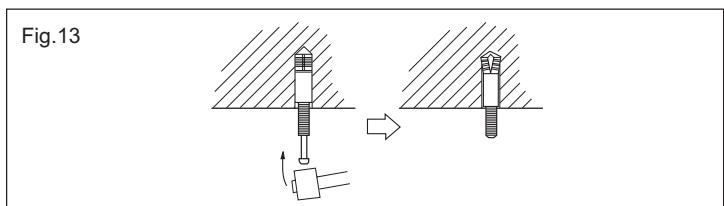


### 2.Drilling holes for anchor bolts and installing the anchor bolts

With a concrete drill, drill four 12.7 mm dia. Holes. (Fig.12)



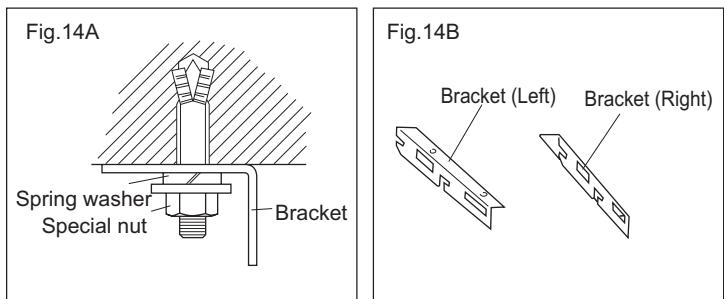
Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer. (Fig.13)



# Installation Procedure

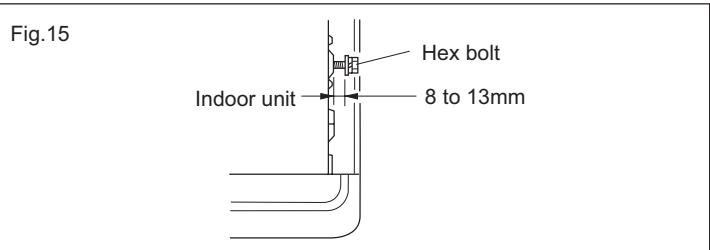
## 3. Installing brackets

Install the brackets with nuts, washers and spring washers. (Fig.14)

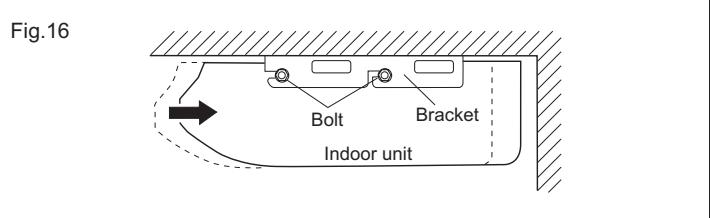


## 4. Installing indoor unit

Reset the hex bolts as shown in Fig.15.



Apply the indoor unit to the brackets. (Fig.16)  
Now, securely tighten the hex bolts in both sides.



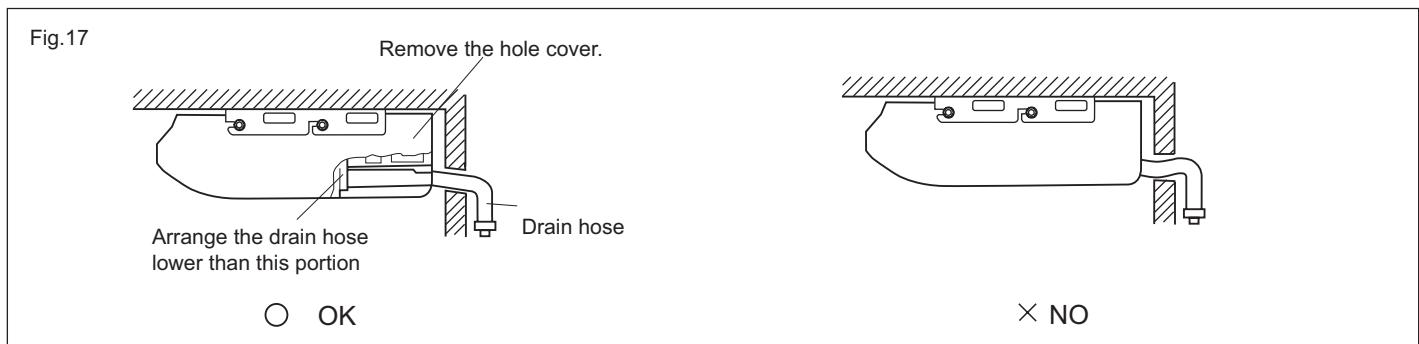
## 5. Installing the drain hose

Select whether the drain hose will be connected to the left or right side.(Fig.2)

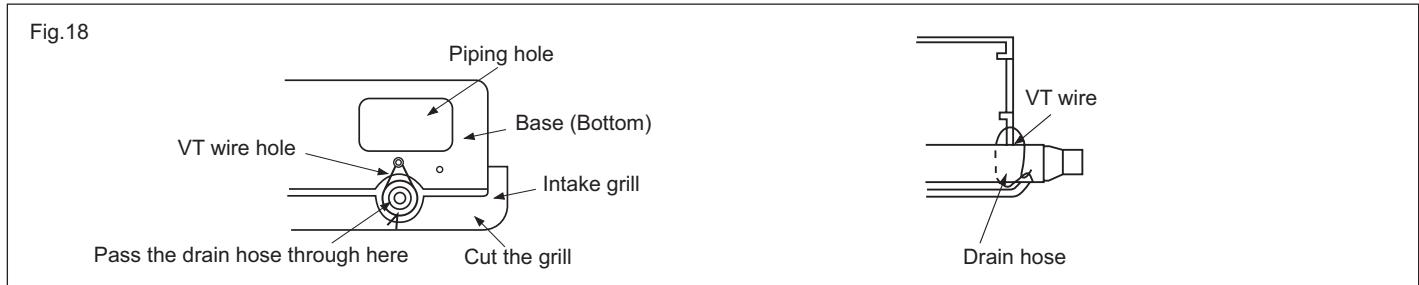
Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener.(Fig.5)

Wrap the insulation (drain hose) around the drain hose connection. (Fig.6)

Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit. (Fig.17)



When drain hose is arranged backward. Secure the drain hose with the VT wire. (Fig.18)



# Installation Procedure

## CONNECTING THE PIPING

### 1. Flare processing

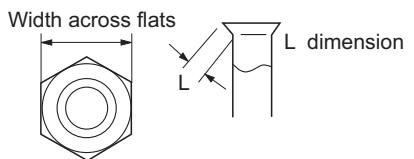
- (1) Cut the connection pipe with pipe cutters so that the pipe is not deformed.
- (2) Holding the pipe downward so that cuttings cannot enter the pipe, remove the burrs.
- (3) Remove the flare nut from the indoor unit pipe and outdoor unit and assemble as shown in Table 1 and insert the flare nut onto the pipe, and flare with a flaring tool.
- (4) Check if the flared part "L" (Fig.1) is spread uniformly and that there are no cracks.

Model	Pipe	Diameter of pipe	Dimension A (mm)
12K	Liquid pipe	Ø 6.35mm (1/4")	1.0~1.2
	Gas pipe	Ø 9.52mm (3/8")	
18K	Liquid pipe	Ø 6.35mm (1/4")	1.0~1.2
	Gas pipe	Ø 12.7mm (1/2")	
24K	Liquid pipe	Ø 9.52mm (3/8")	1.4~2.2
	Gas pipe	Ø 15.88mm (5/8")	

Table 1

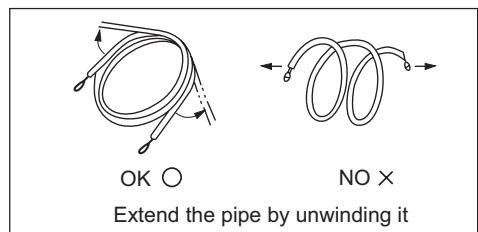
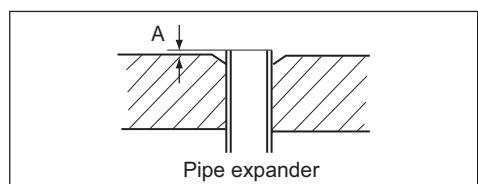
Pipe	Flare nut
Small pipe	Small (width across flats 22mm)
Large pipe	Large (width across flats 24mm)

Fig.1



### 2. Bending pipes

The pipes are shaped by your hands. Be careful not to collapse them.



## ELECTRICAL WIRING

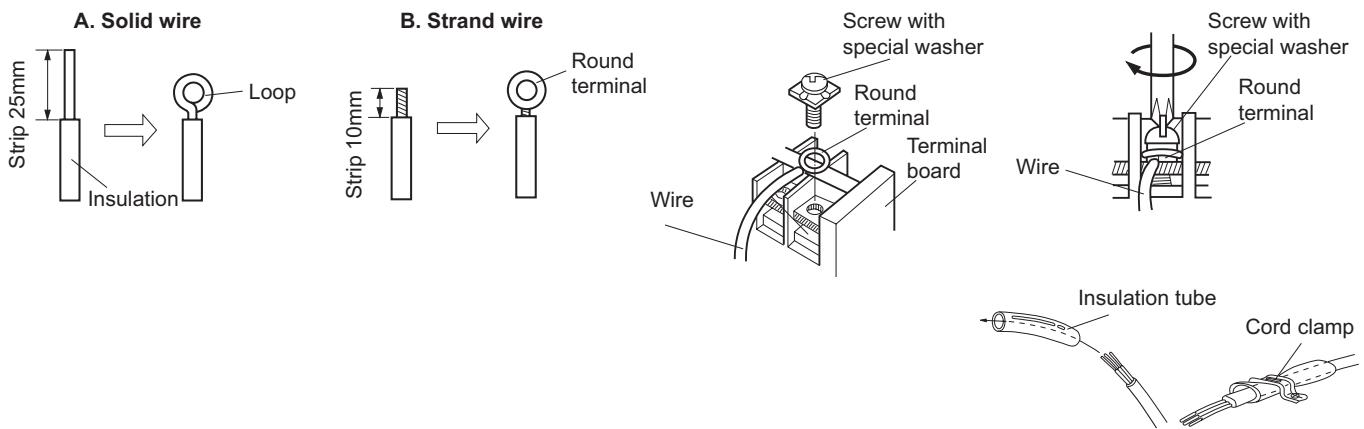
### Connect wiring to the terminal blocks

#### A. For solid core wiring (or F-cable) (Fig.A)

- (1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 25mm of the exposed solid wire.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- (4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screw driver.

#### B. For strand wiring (Fig.B)

- (1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 10mm of the exposed strand wiring.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- (4) Position the round terminal wire, and replace and tighten the terminal screw using a screw driver.



### Fix connection cord and power cable at the cord clamp

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp, as shown right.

Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

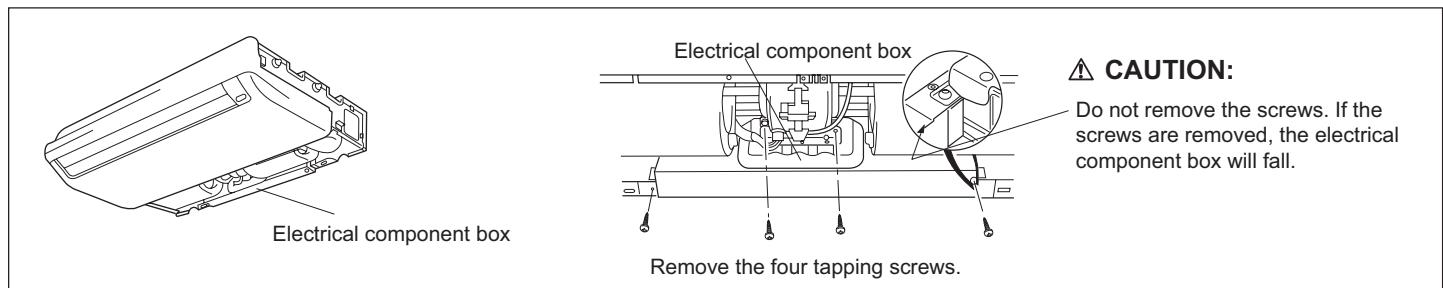
# Installation Procedure

## ⚠ CAUTION:

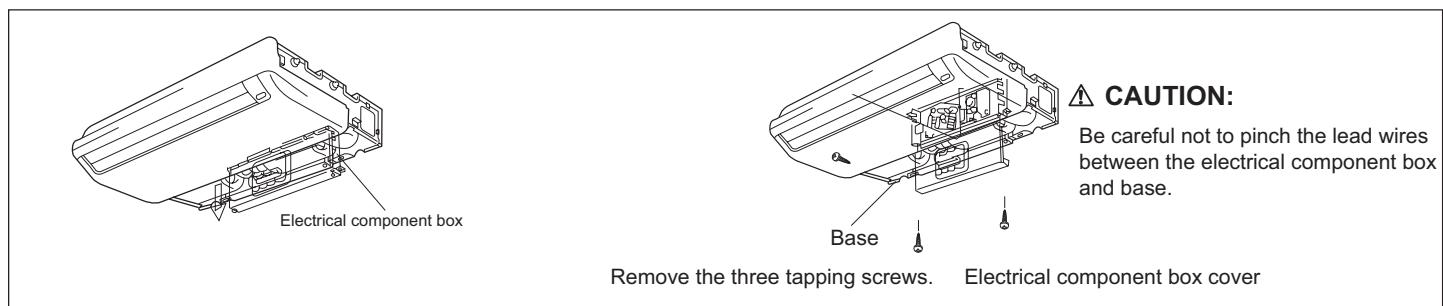
- Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with the cord clamp.(If the insulator is chafed, electric leakage may occur.)
- Always connect the ground wire.

## Wiring of indoor unit

(1) Remove the electrical component box.

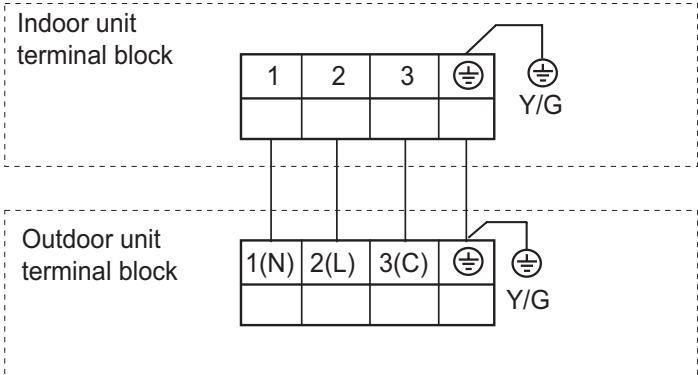


(2) Pull out the electrical component box.



## (4) Wiring

1. Remove the cord clamp.
2. Process the end of the connection cords to the dimensions shown in the right figure.
3. Connect the end of the connection cord fully into the terminal block.
4. Fasten the connection cord with a cord clamp.
5. Fasten the end of the connection cord with the screw.



## ⚠ WARNING:

- (1) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- (2) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner.
- (3) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.
- (4) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
- (5) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

## ⚠ CAUTION:

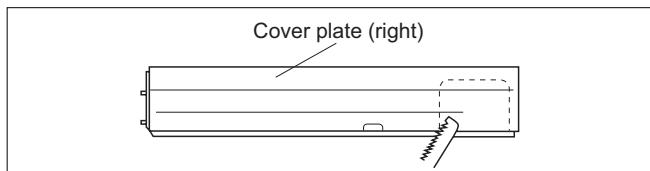
- (1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- (2) When the voltage is too low and the air conditioner is difficult to start, contact the power company the voltage raised.
- (3) The Unit has default temperature compensation setting, pls. cancel it when floor standing installation.

# Installation Procedure

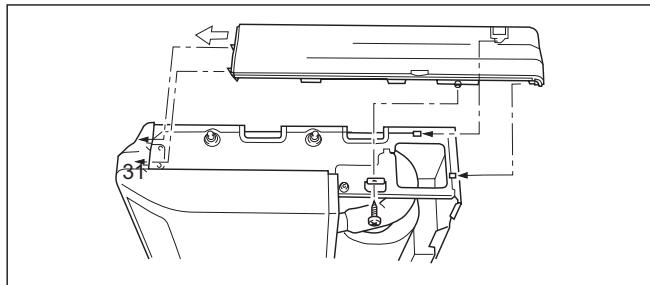
## MOUNT THE COVER PLATE AND THE INTAKE GRILL

### 1. Mount the cover plate (right)

(1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side. This operation is not required when the protrusion is on the top or rear.

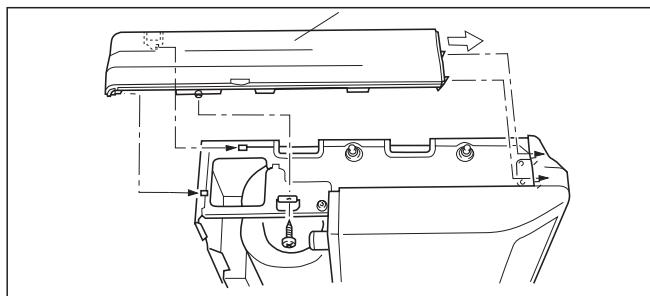


(2) Join the cover plate (right) and mount with screws.

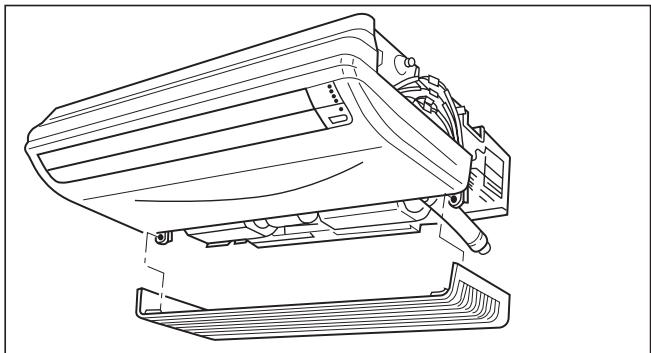


### 2. Mount the cover plate (left)

Join the cover plate (left) and mount with screws.

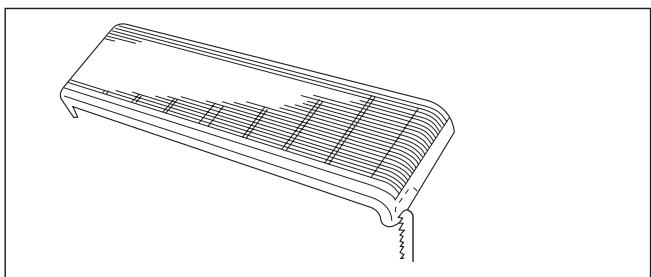


(2) Insert the hinges on the bottom of the intake grill into the holes in the base assembly. Then mount the arms to the three areas on the top of the intake grill.



### 3. Mount the intake grill.

(1) Cut the right side of the intake grill. This is only when the pipe exits from the right side



## Test Run

### Check items

#### 1. Indoor unit

- Is operation of each button on the remote control unit normal?
- Does each lamp light normally?
- Do not air flow direction louvers operate normally?
- Is the drain normal?

#### 2. Outdoor unit

- Is there any abnormal noise and vibration during operation?
- Will noise, wind or drain water from the unit disturb the neighbors?
- Is there any gas leakage?

### Customer guidance

Explain the following to the customer in accordance with the operating manual:

- (1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching and other remote control unit operations.
- (2) Air filter removal and cleaning, and how to use air louvers.
- (3) Give the operation and installation manuals to the customer.

# Coverable type (28K/36K/48K/60K)Installation Procedure

## **SELECTING THE MOUNTING POSITION**

### **WARNING**

- Install at a place that can withstand the weight of the indoor unit and install it positively so that the unit will not topple or fall.

### **CAUTION**

- Do not install the unit where there is the danger of combustible gas leakage.
- Do not install near heat sources.
- If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

### **Decide the mounting position with the customer as follows.**

- (1) Install the indoor unit level on a strong wall which is not subject to vibration.
- (2) The inlet and outlet ports should not be obstructed, and the air should be able to blow all over the room.
- (3) Do not install the unit where it will be exposed to direct sunlight
- (4) Install the unit where connection to the outdoor unit is easy.
- (5) Install the unit where the drain pipe can be easily installed.
- (6) Take servicing, etc. into consideration and leave the spaces shown in "Maintenance space dimension".
- (7) Install the unit where the filter can be removed

## **ACCESSORIES FOR INSTALLATION**

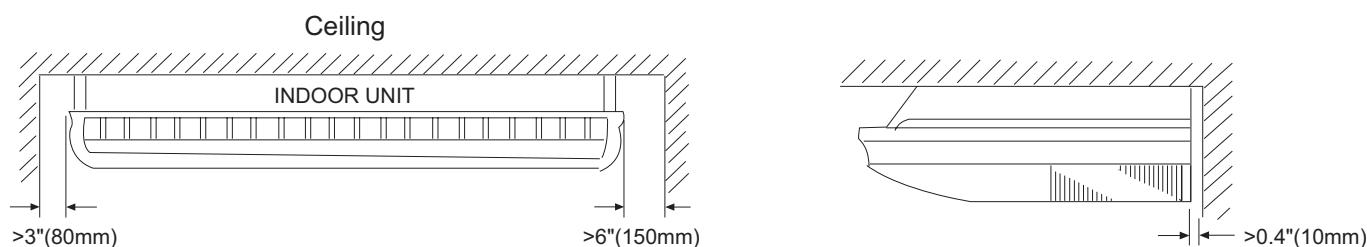
The following installation parts are optional parts. Use them as required.

### Optional parts

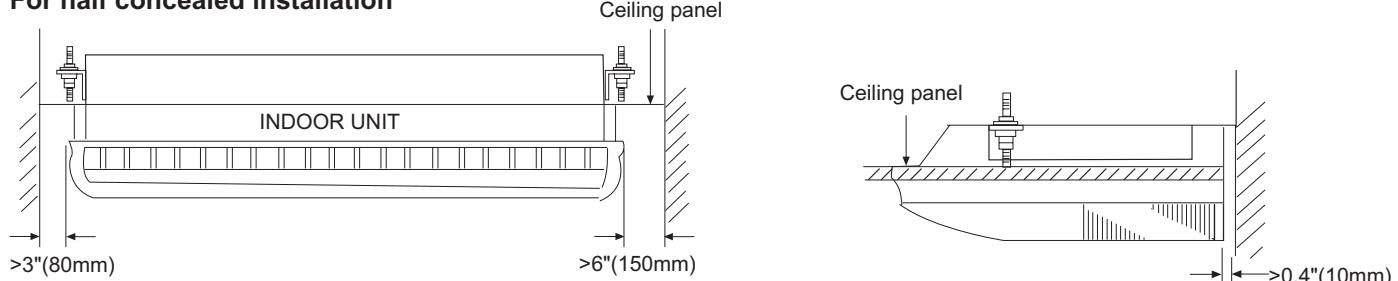
Adhesive tape
Saddle (L.S) with screws
Drain hose
Heat insulation material
Piping hole cover
Putty
Plastic clamp

## **MAINTENANCE SPACE DIMENSION**

### **For ceiling installation**



### **For half concealed installation**



# Installation Procedure

## INSTALLING THE INDOOR UNIT

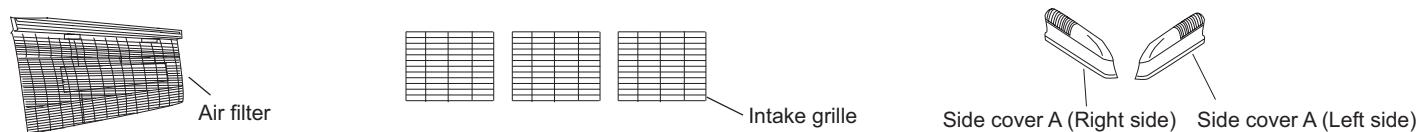
### Connection pipe requirement

Model	Diameter		Maximum length	Maximum height (between indoor and outdoor)
	Liquid side	Gas side		
28K 36K	9.52 mm	15.88mm	30 m	20m
48K 60K	9.52 mm	19.05mm	50 m	30 m

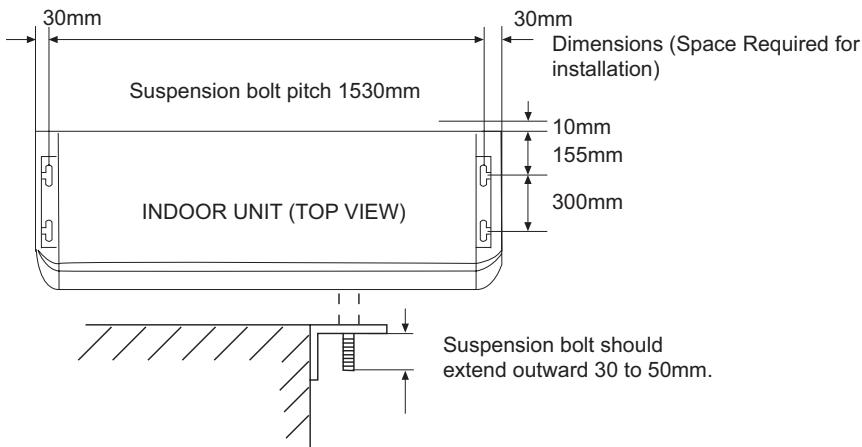
### Install the room air conditioner as follows

#### 1. Remove the intake grill and side cover

- (1) Remove the Air filters
- (2) Remove the intake grilles
- (3) Remove the Side cover (Right and left side)
- (4) This air conditioner can be set up to intake fresh air. The information about how to install for fresh-air intake, refer to "Fresh air intake".

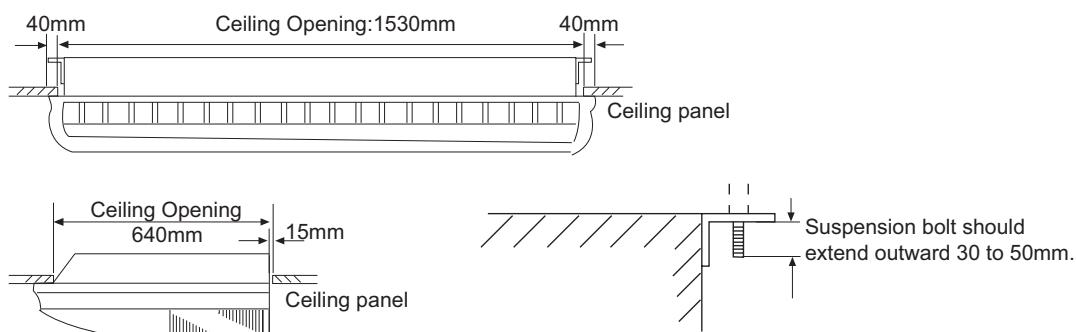


#### 2. Location of ceiling suspension bolts



#### For half-concealed installation

Suspension-bolt pitch should be as shown below

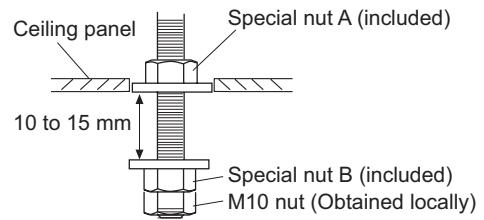


# Installation Procedure

## 3. Drilling the holes and attaching the suspension bolts

- (1) Drill  $\phi 25\text{mm}$  holes at the suspension-bolt locations. The two special nuts are provided with the unit. The M10 nut must be obtained locally.
- (2) Install the bolts, then temporarily attach Special nuts A and B and a normal M10 nut to each bolt.

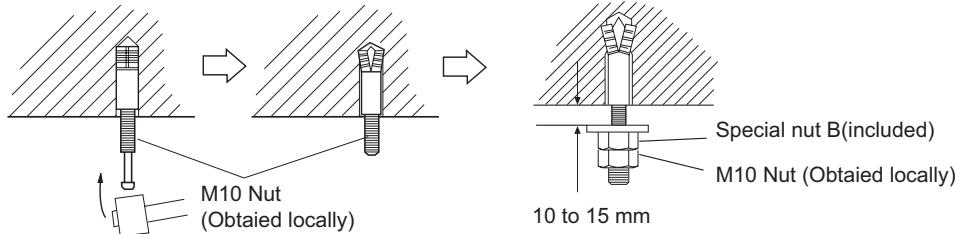
Bolt strength: 980 to 1470 N (100 TO 150 kgf)



### If using anchor bolts

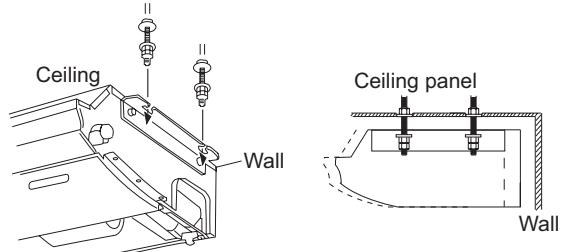
- (1) Drill holes for anchor bolts at the locations at which you will set the suspension bolts. Note that anchor bolts must be obtained locally.
- (2) Install the anchor bolts, then temporarily attach special nut "B" (included) and a locally-procured M10 nut to each of the bolts.

Anchor-bolt strength: 980 to 1470 N (100 TO 150 kgf)



## 4. Installing the indoor unit

- (1) Lift unit so that suspension bolts pass through suspension fittings at the sides (four places),and slide the unit back.
- (2) Fasten the indoor unit into place by tightening-up the special "B" bolts and the M10 nuts. Make sure that unit is secure and will not shift back and forth.

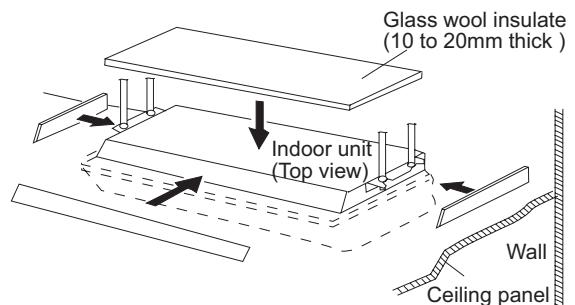


### For half-concealed installation

When installing the indoor unit in a semi-concealed orientation, make sure to reinforce the insulation of the unit on all sides. Drops of water may fall from the unit if it is not thoroughly insulated.

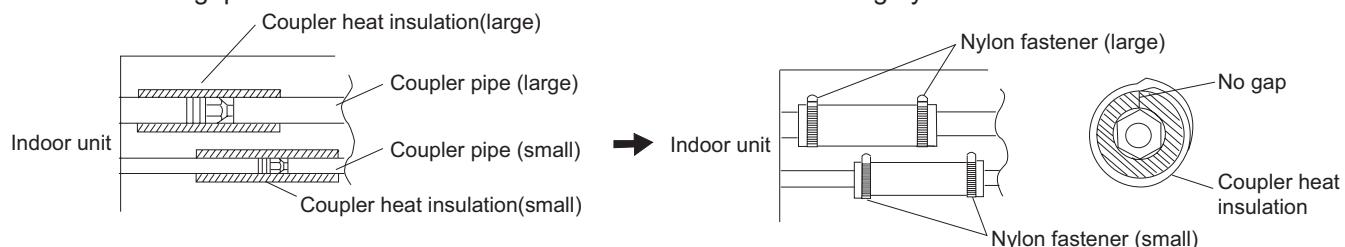
#### CAUTION

In order to check the drainage, be sure to use a level during installation of the indoor unit. If the installation site of the indoor unit is not level, water leakage may occur.



## 5. Installing the coupler heat insulation

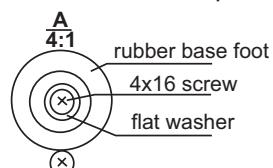
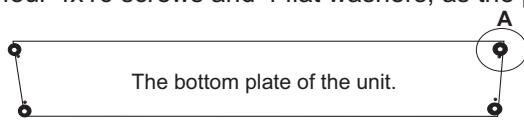
After checking for gas leaks, insulate by wrapping insulation around the two parts (large and small) of the indoor unit coupling, using the coupler heat insulation. After installing the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap. Secure both ends of the heat insulation material using nylon fasteners.



When using an auxiliary pipe, make sure that the fastener used is insulated in the same way.

#### Note:

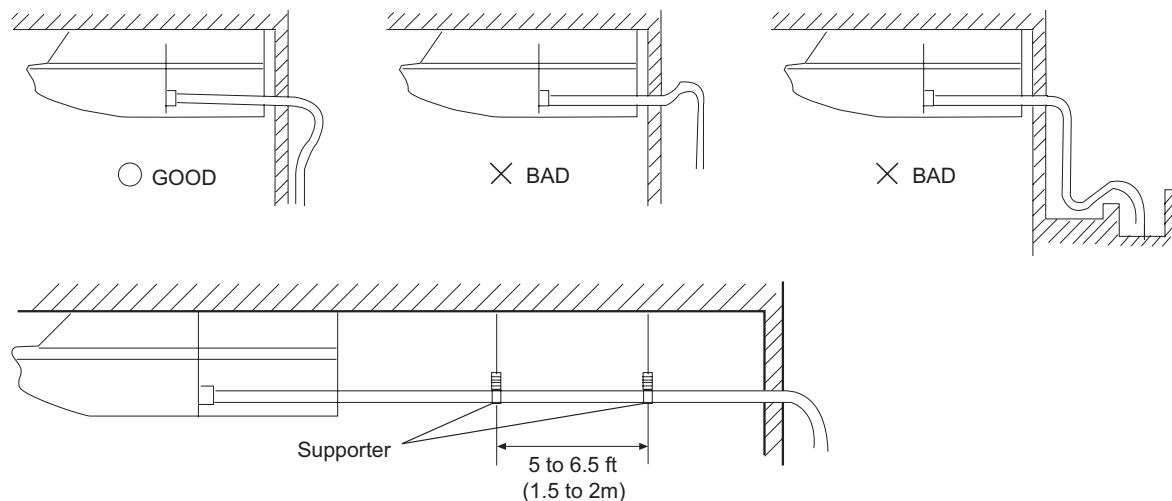
When installing the unit on the floor, fix the four rubber base feet in the accessories on the bottom plate of the unit with four 4x16 screws and 4 flat washers, as the position in the figure.



# Installation Procedure

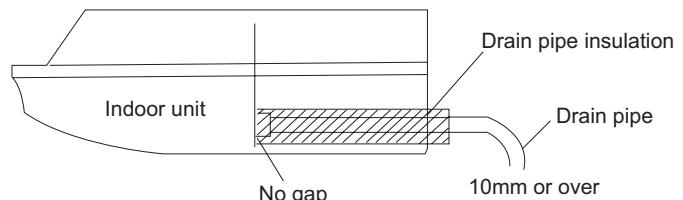
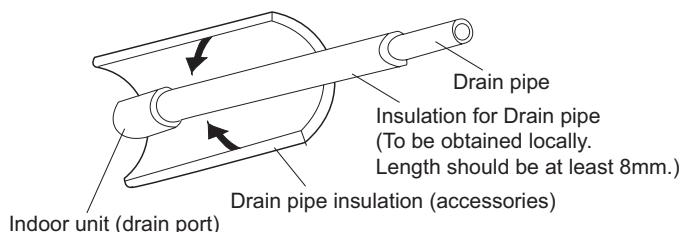
## INSTALLING THE DRAIN HOSE

- Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
- Use general hard polyvinyl chloride pipe (VP25) (outside diameter 38 mm)
- During installation of the drain pipe, be careful to avoid applying pressure to the drain point of the unit.
- When the pipe is long, install supporters.
- Do not perform air bleeding.
- Always heat insulate (8mm or over thick) the indoor side of the drain pipe.



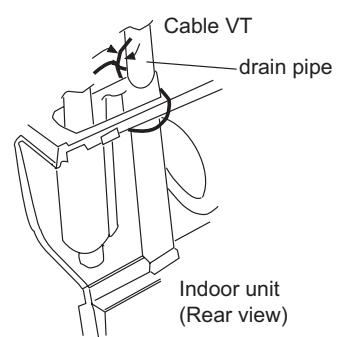
### (1) Install insulation for the drain pipe

Cut the included insulation material to an appropriate size and adhere it to the pipe.



### (2) When drain pipe is put in the right rear position

Fasten the drain pipe with cable VT so that there is a proper slope for drain pipe to exit from the indoor unit.



# Installation Procedure

## ELECTRICAL WIRING

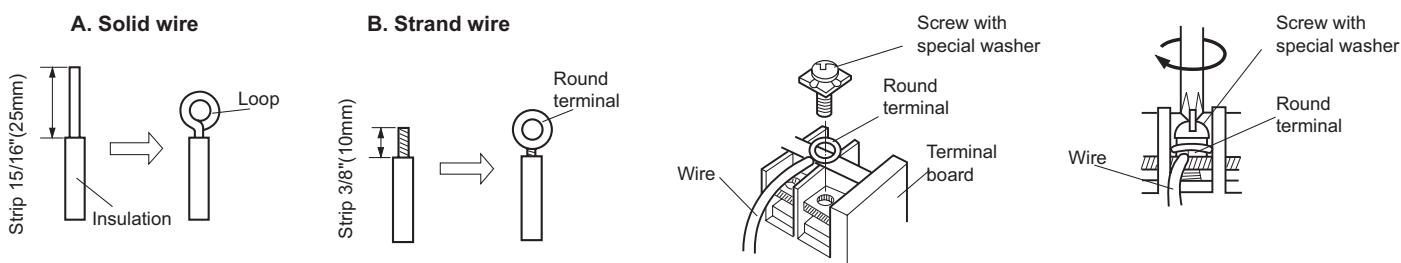
### Connect wiring to the terminals

#### A. For solid core wiring (or F-cable)

- (1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 15/16"(25mm) to expose the solid wire.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- (4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

#### B. For strand wiring

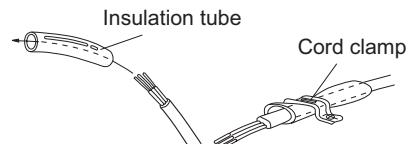
- (1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 3/8"(10mm) to expose the solid wire.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- (4) Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.



### Fix connection cord and power cable at the cord clamp

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp.

Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.



## Electrical requirement

Select wire sizes and circuit protection from table below. (This table shows 20m length wires with less than 2% voltage drop).

Item Model	Phase	Circuit breaker		Power source wire size (minimum) (mm <sup>2</sup> )	Earth leakage breaker	
		Switch breaker (A)	Overcurrent protector rated capacity (A)		Switch breaker(A)	Leak current(mA)
28K 36K	1	40	30	6.0	40	30
48K 60K	1	30	20	4.0	10	30

## CAUTION

- Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning the electric parts.
- Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with the cord clamp. If the insulator is chafed, electric leakage may occur.
- Always connect the ground wire.
- The Unit has default temperature compensation setting, please cancel it when floor standing installation.

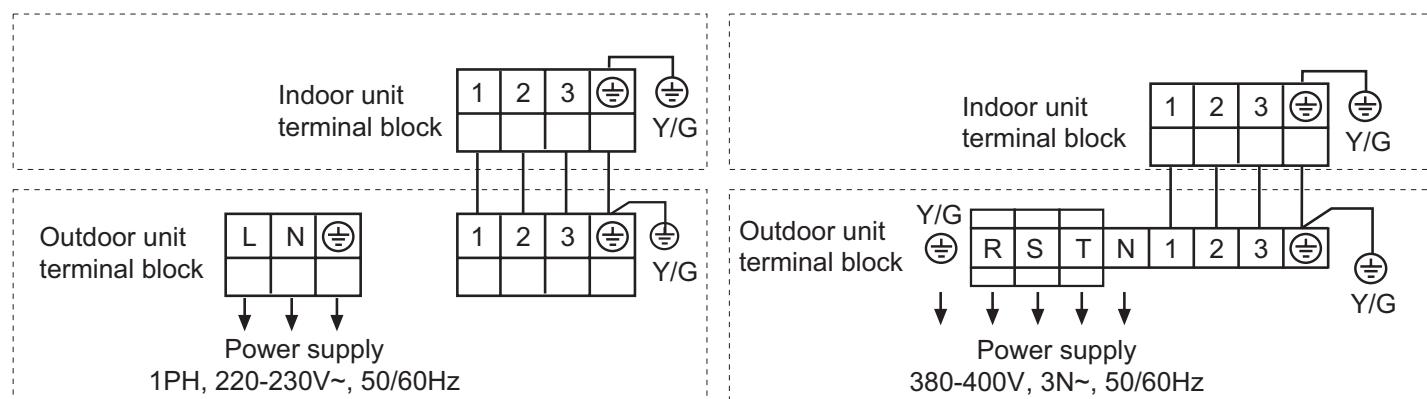
## Connect indoor unit and outdoor unit

- (1) Remove the cord clamp.
- (2) Process the end of the connection cords to the dimensions shown in wiring diagram.
- (3) Connect the end of the connection cord fully into the terminal block.
- (4) Fasten the connection cord with a cord clamp.
- (5) Fasten the end of the connection cord with the screw.

# Installation Procedure

## Wiring diagram

28K 36K 48K 60K



## WARNING

- The power cable and connecting cable are self-provided.
- Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- Use a circuit breaker and receptacle matched to the capacity of the room air conditioner.
- The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.
- Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
- Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

## CAUTION

- The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

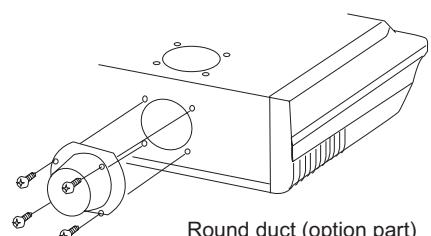
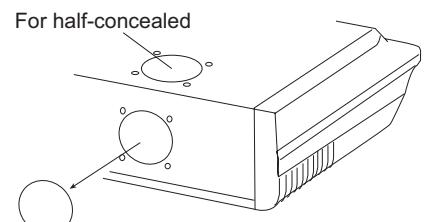
## FRESH AIR INTAKE

- Open up the knockout hole for the fresh air intake. If using half-concealed installation, open up the top knockout hole instead.

## CAUTION

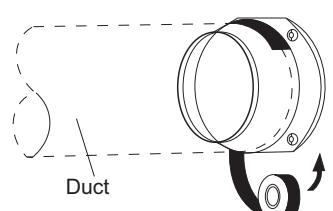
- When removing the cabinet (iron plate), be careful not to damage the indoor unit internal parts and surrounding area (outer case).
- When processing the cabinet (iron plate), be careful not to injure yourself with burrs,etc.

- Fasten the round flange (optional) to the fresh air intake. If using half-concealed installation, attach to the top.



- Connect the duct to the round flange.

- Seal with a band and vinyl tape,etc. so that air does not leak from the connection.



# Test Run

---

## Check items

### 1. Indoor unit

- Is operation of each button on the remote control unit normal?
- Does each lamp light normally?
- Do not air flow direction louvers operate normally?
- Is the drain normal?

### 2. Outdoor unit

- Is there any abnormal noise and vibration during operation?
- Will noise, wind, or drain water from the unit disturb the neighbors?
- Is there any gas leakage?

## Customer guidance

Explain the following to the customer in accordance with the operation manual:

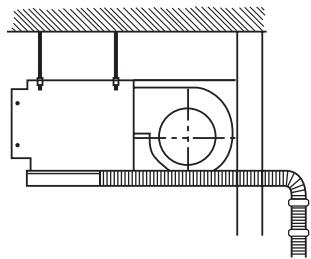
- (1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
- (2) Air filter removal and cleaning, and how to use air louvers.
- (3) Give the operation and installation manuals to the customer.

# Low ESP DUCT Installation Procedure

Indoor Unit

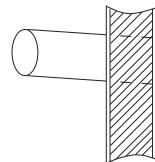
## Selecting the mounting position to install the indoor units

- Select suitable places where the outlet air can be sent to the entire room, and convenient to lay out the connection pipe, connection wire and the drainage pipe to outdoor.
- The ceiling structure must be strong enough to support the unit weight.
- The connecting pipe, drain pipe and connection wire shall be able to go through the building wall to connect between the indoor and outdoor units.
- The connecting pipe between the indoor and outdoor units as well as the drain pipe shall be as short as possible.
- If it is necessary to adjust the filling amount of the refrigerant, please refer to the installation manual attached with the outdoor unit.
- The connecting flange should be provided by the user himself.
- The indoor unit has two water outlets one of which is obstructed at the factory (with a rubber cap). Only the outlet not obstructed (liquid inlet and outlet side) will be generally used during installation. If applicable, both the outlets should be used together.
- An access port must be provided during installation of indoor unit for maintenance.



## After selecting the unit installation location, proceed the following steps:

1. Drill a hole in the wall and insert the connecting pipe and wire through a PVC wall-through tube purchased locally. The wall hole shall be with an outward down slope of at least 1/100.
2. Before drilling check that there is no pipe or reinforcing bar just behind the drilling position.  
Drilling shall avoid at positions with electric wire or pipe.
3. Mount the unit on a strong and horizontal building roof. If the base is not firm, it will cause noise, vibration or leakage.
4. Support the unit firmly.
5. Change the form of the connection pipe, connection wire and drain pipe so that they can go through the wall hole easily.



## Installation dimension

12K	A	B	C	D	E	F	G	H	I
18K	420	892	370	850	185	640	85	760	152
24K	420	1212	370	1170	185	960	85	1080	152

Indoor unit dimensions(unit:mm)

Three technical drawings of the indoor unit. The top drawing is a front view with dimensions A (width), B (depth), C (height), D (width), E (depth), F (width), G (depth), H (width), and I (height). The middle drawing is a side view showing the unit's profile. The bottom drawing is a top view showing the internal components and their arrangement.

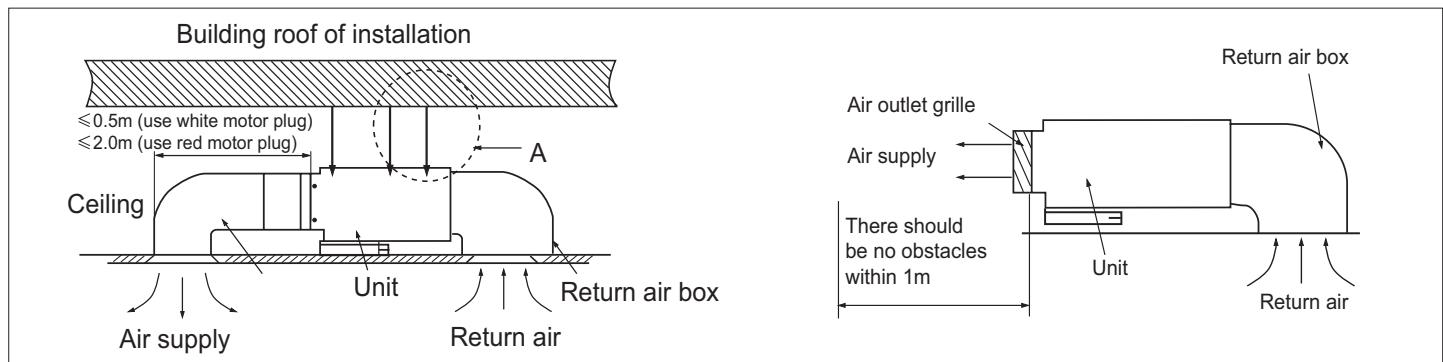
## Installation Procedure

Air Duct

- Each of the air sending duct and air return duct shall be fixed on the prefabricated panel of the floor by the iron bracket. The recommended distance between the edge of the air return duct and the wall is over 150mm.
- The gradient of the condensate water pipe shall keep over 1%.
- The condensate water pipe shall be thermal insulated.
- When installing the ceiling Concealed type indoor unit, the air return duct must be designed and installed as figure shown.

# Installation Procedure

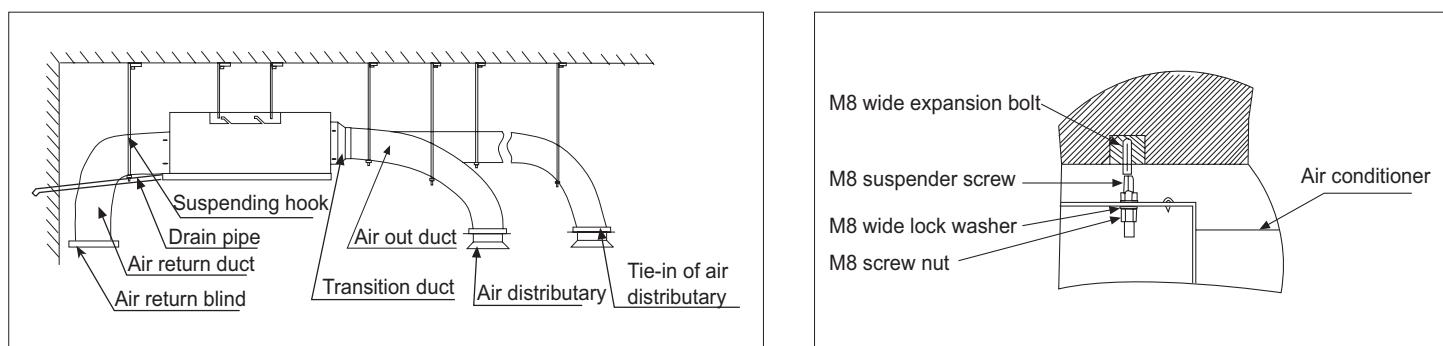
Air Duct



## Note:

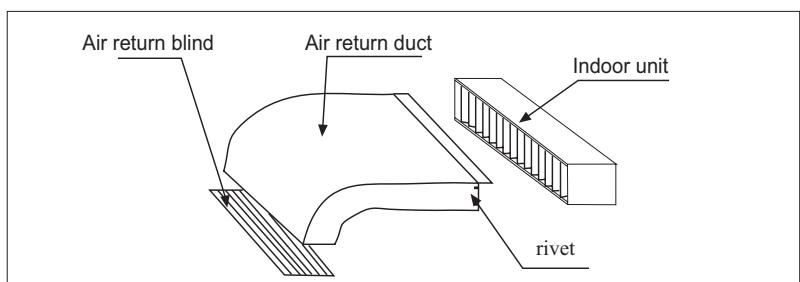
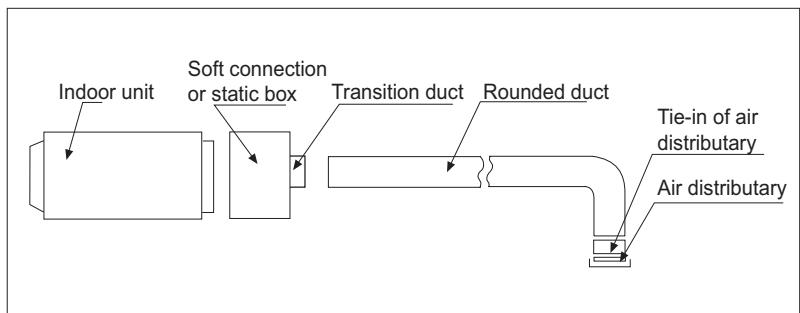
- When connecting the short ducts, use the low static terminals, which color is white.  
The distance L from the air outlet of the duct to the air outlet of the air conditioner shall be no more than 0.5 m.
- When connecting the long ducts, use the middle static terminals, which color is red.  
The distance L from the air outlet of the duct to the air outlet of the air conditioner shall be no more than 2.0 m.

## The sketch map of long duct



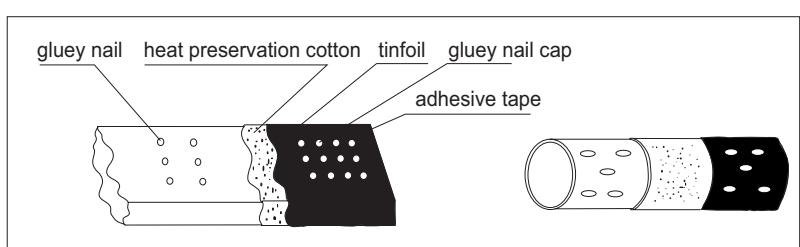
### 1. Installation of air sending duct

- This unit uses rounded duct, the diameter of the duct is 180mm.
- The rounded duct needs to add a transition duct to connect with the air-sending duct of indoor unit, then connect with respective separator. As Figure shown, all the fan speed of any of the separator's air outlet shall be adjusted approximately the same to meet the requirement for the room air conditioner.



### 3.Thermal insulation of duct

- Air-sending duct and air return duct shall be thermally insulated. First stick the gluey nail on the duct, then attach the heat preservation cotton with a layer of tinfoil paper and use the gluey nail cap to fix. Finally use the tinfoil adhesive tape to seal the connected part. As Figure shown.



# Installation Procedure

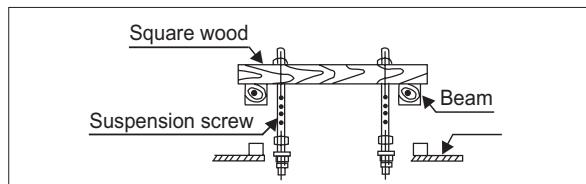
Air Duct

## Installing the suspension screw

Use M8 or M10 suspension screws (4, prepared in the field) (when the suspension screw height exceeds 0.9m, M10 size is the only choice). These screws shall be installed as follows with space adapting to air conditioner overall dimensions according to the original building structures.

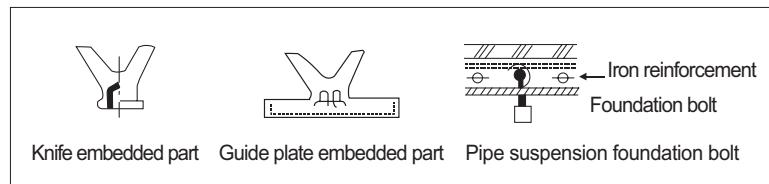
### Wooden structure

A square wood shall be supported by the beams and then set the suspension screws.



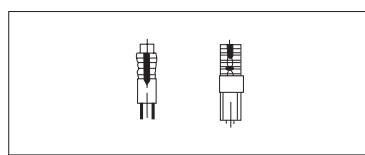
### New concrete slab

To set with embedded parts, foundation bolts etc.



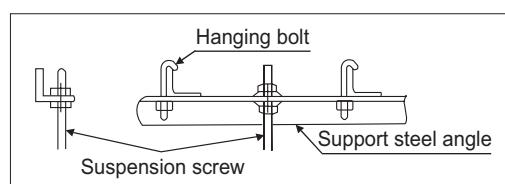
### Original concrete slab

Use hole hinge, hole plunger or hole bolt.



### Steel reinforcement structure

Use steel angle or new support steel angle directly.



## Hanging of the indoor unit

- Fasten the nut on the suspension screw and then hang the suspension screw in the T slot of the suspension part of the unit.
- Aided with a level meter, adjust level of the unit within 5mm

# Installation Procedure

Refrigerant Pipe

### ⚠ CAUTION

- In installation, if there is refrigerant gas leakage, please take ventilation measures immediately. The refrigerant gas will generate poisonous gas upon contacting fire.
- After installation, please verify that there is no refrigerant leakage. The leaked refrigerant gas will produce poisonous gas when meeting fire source such as heater and furnace etc.

### Pipe material

Phosphorus deoxidized copper seamless pipe (TP2M) for air conditioner.

### Pipe size (unit :mm)

Model	Gas side	Liquid side
12K	Ø9.52	Ø6.35
18K	Ø12.7	Ø6.35
24K	Ø15.88	Ø9.52

### Allowable pipe length and drop

These parameters differ according to the outdoor unit. See the instruction manual attached with the outdoor unit for details.

### Supplementary refrigerant

The refrigerant supplementation shall be as specified in the installation instructions attached with the outdoor unit. The adding procedure shall be aided with a measuring meter for a specified amount of supplemented refrigerant.

### Note:

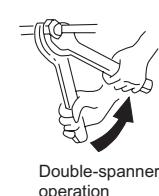
Overfilling or underfilling of refrigerant will cause compressor fault. The amount of the added refrigerant shall be as specified in the instructions.

### Connection of refrigerant pipe

Conduct flared connection work to connect all refrigerant pipes.

- The connection of indoor unit pipes must use double spanners.
- The installing torque shall be as given in the following table.
- Wall thickness of connection pipe  $\geq 0.8\text{mm}$

Connecting pipe O.D.(mm)	Installing torque (N·m)
Ø 6.35	11.8 (1.2kgf-m)
Ø 9.52	24.5 (2.5 kgf-m)
Ø 12.7	49.0 (5.0 kgf-m)
Ø 15.88	78.4 (8.0 kgf-m)



### Creating vacuum

With a vacuum pump, create vacuum from the stop valve of the outdoor unit. Emptying with refrigerant sealed in the outdoor unit is absolutely forbidden.

# Installation Procedure

## Refrigerant Pipe

### Open all valves

Open all the valves on the outdoor unit.

### Gas leakage detection

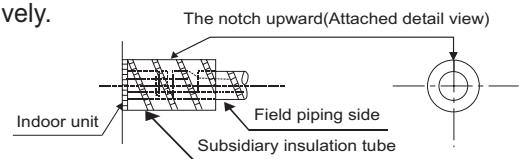
Check with a leakage detector or soap water if there is gas leakage at the pipe connections and bonnets.

### Insulation treatment

Conduct insulation treatment on both the gas side and liquid side of pipes respectively.

During cooling operation, both the liquid and gas sides are cold and thus shall be insulated so as to avoid dew generation.

- The insulating material at gas side shall be resistant to a temperature above 120°C
- The indoor unit pipe connection part shall be insulated.



# Installation Procedure

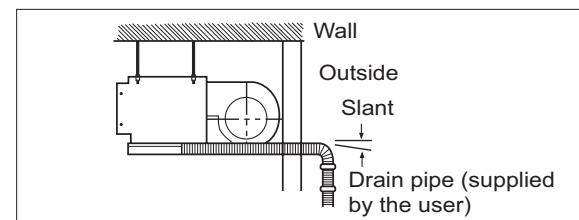
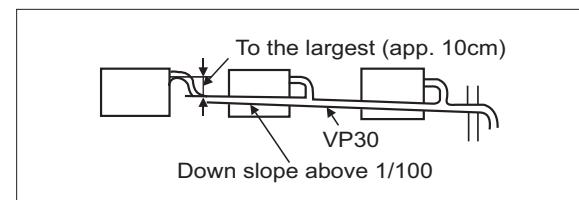
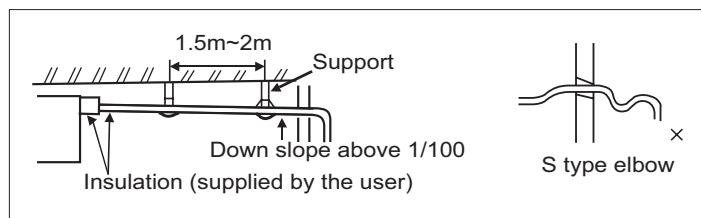
## Drain Pipe

### ⚠ CAUTION

In order to drain water normally, the drain pipe shall be processed as specified in the installation manual and shall be thermal insulated to avoid dew generation. Improper hose connection may cause indoor water leakage.

### Requirements

- The indoor drain pipe shall be thermal insulated.
- The connection part between the drain pipe and the indoor unit shall be insulated so as to prevent dew generation.
- The drain pipe shall be slant downwards (greater than 1/100). The middle part shall not be of S type elbow, otherwise abnormal sound will be produced.
- The horizontal length of the drain pipe shall be less than 20 m. In case of long pipe, supports shall be provided every 1.5 – 2m to prevent wavy form.
- Central piping shall be laid out according to the right figure.
- Take care not to apply external force onto the drain pipe connection part.



### Pipe and insulation material

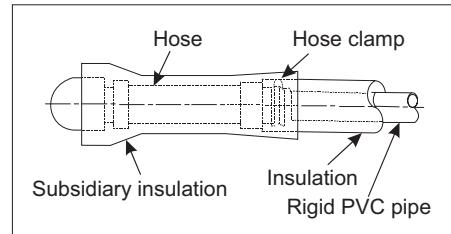
Pipe	Rigid PVC pipe VP20 mm (internal diameter)
Insulation	Foamed PE with thickness above 7 mm

### Hose

Drain pipe size: (3/4") PVC pipe

The hose is used for adjusting the off-center and angle of the rigid PVC pipe.

- Directly stretch the hose to install without making any deformation.
- The soft end of the hose must be fastened with a hose clamp.
- Please apply the hose on horizontal part Insulation treatment.
- Wrap the hose and its clamp up to the indoor unit without any clearance with insulating material, as shown in the figure.



### Drain confirmation

During trial run, check that there is no leakage at the pipe connection part during water draining even in winter.

**⚠ WARNING****DANGER OF BODILY INJURY OR DEATH**

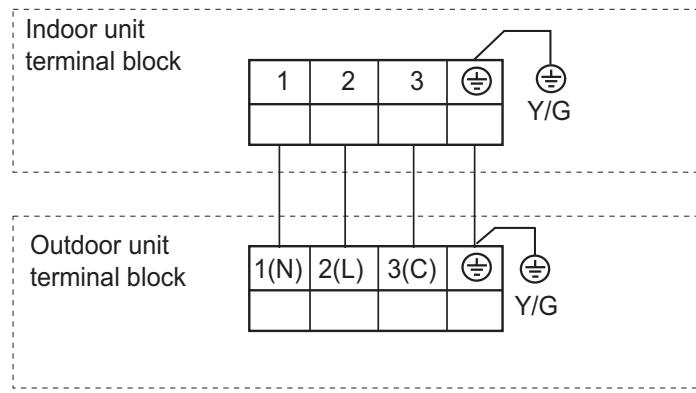
TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS. GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

**Precautions for Electrical wiring**

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

**Wiring connection**

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.



# Med ESP DUCT Installation Procedure

Indoor Unit

## NOTE

All wiring of this installation must comply with NATIONAL, STATE AND LOCAL REGULATIONS. These instructions do not cover all variations for every kind of installation circumstance. Should further information be desired or should particular problems occur, the matter should be referred to your local distributor.

## WARNING

BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND/OR PROPERTY DAMAGE.

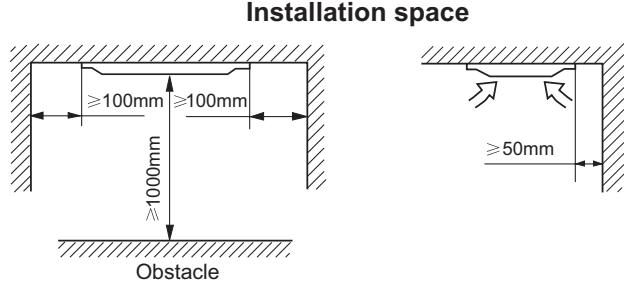
### Preparation of indoor unit

Before or during the installation of the unit, assemble necessary optional panel etc. depending on the specific type.

**Select places for installation satisfying following conditions and at the same time obtain the consent on the part of your client user.**

- a. Places where chilled or heated air circulates freely. When the installation height exceeds 3m warmed air stays close to the ceiling. In such cases, suggest your client users to install air circulators.
- b. Places where perfect drainage can be prepared and sufficient drainage.
- c. Places free from air disturbances to the suction port and blowout hole of the indoor unit, places where the fire alarm may not malfunction or short-circuit.
- d. Places with the environmental dew-point temperature is lower than 28°C and the relative humidity is less than 80 %.  
(When installing at a place under a high humidity environment, pay sufficient attention to the prevention of dewing such as thermal insulation of the unit. )
- e. Ceiling height shall have the following height.

	24K(Mid)	28K 36K 48K(Mid)
Combination with silent panel	366mm	416mm



### Avoid installation and use at those places listed

- a. Places exposed to oil splashes or steam (e.g. kitchens and machine plants).  
Installation and use at such places incur deteriorations in the performance or corrosion with the heat exchanger or damage in molded synthetic resin parts.
- b. Places where corrosive gas (such as sulfurous acid gas) or inflammable gas (thinner, gasoline etc.) is generated or remains. Installation and use at such places cause corrosion in the heat exchanger and damage in molded synthetic resin parts.
- c. Places adjacent to equipment generating electromagnetic waves or high-frequency waves such as in hospitals.  
Generated noise may cause malfunctioning of the controller.

### Pipe size

Model	Liquid side	Gas side
24K(Mid)		
28K		
36K		
48K(Mid)	Ø 9.52mm	Ø 15.88mm

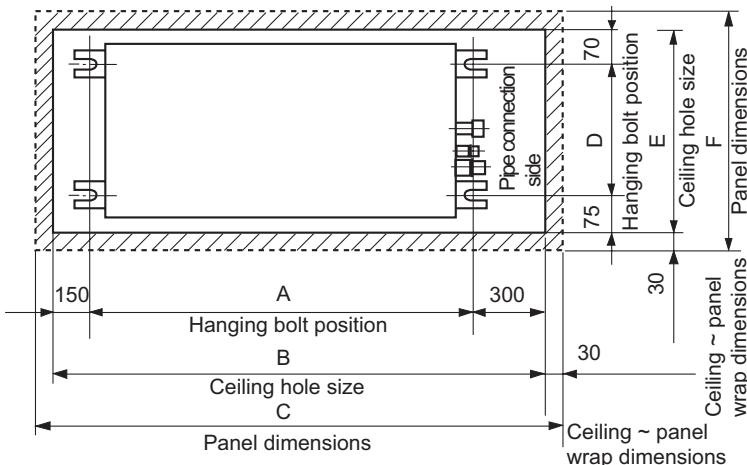
# Installation Procedure

Indoor Unit

## 1. Preparation for suspending the unit

### a. Size of hole at ceiling and position of hanging bolts

<Combination with silent panel>



Model	Dimensions	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
24K(Mid)		987	1437	1497	545	690	750
28K 36K 48K(Mid)		1172	1622	1682	480	625	685

### b. Hanger bolts installation

Use care of the piping direction when the unit is installed.

## 2. Installation of indoor unit

Fix the indoor unit to the hanger bolts.

If required, it is possible to suspend the unit to the beam, etc. Directly by use of the bolts without using the hanger bolts.

### Note

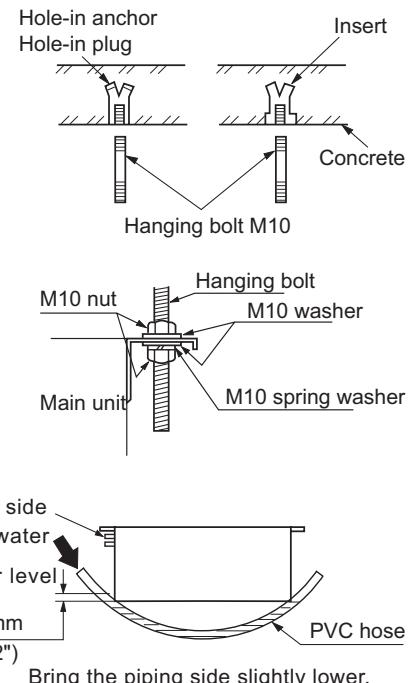
When the dimensions of main unit and ceiling holes does not match, it can be adjusted with the slot holes of hanging bracket.

### Adjusting to the levelness

(a) Adjust the out-of levelness using a level or by the following method.

Make adjustment so that the relation between the lower surface of the unit proper and water level in the hose becomes as given below.

(b) Unless the adjustment to the levelness is made properly, malfunctioning or failure of the float switch may occur.



### Tap selection on blower unit

(When the high performance filter is used.)

Taps of blower unit are set at the standard selection at the shipping from factory. Where the static pressure is raised by employing such option as the high performance filter, etc., change the connection of connectors provided at the flank of control box as shown below.

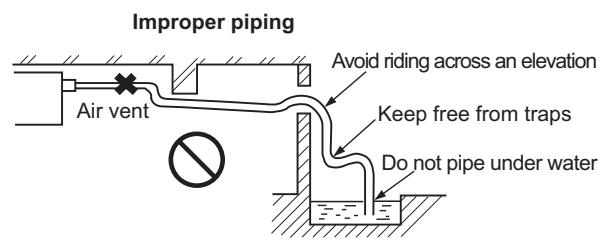
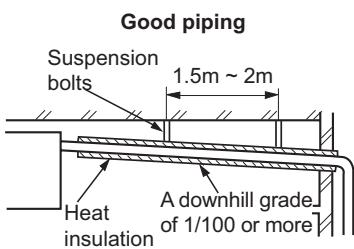
Standard tap (at shipping)				High speed tap			
Control box side	White	Blue	Yellow	White	Blue	Yellow	Red
Connector white	White	White	White	White	White	White	Black
White	Blue	Blue	Blue	Blue	Blue	Blue	White
Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Blue
Red	Red	Red	Red	Red	Red	Red	Red

# Installation Procedure

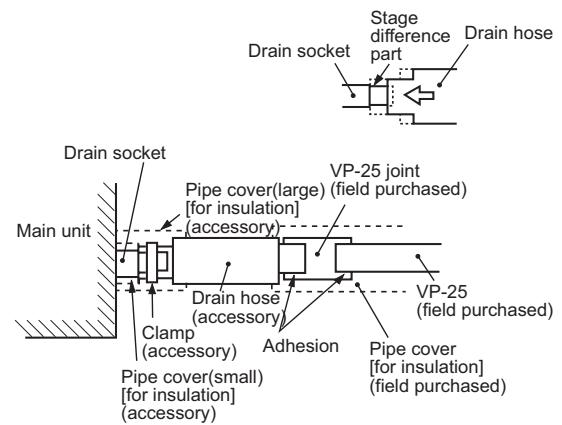
## Drain Pipe

### Drain Piping

(a) Drain piping should always be in a downhill grade (1/50~1/100) and avoid riding across an elevation or making traps.

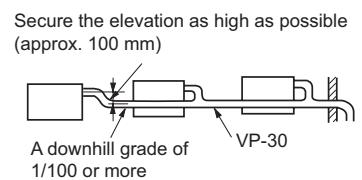


(b) When connecting the drain pipe to unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.



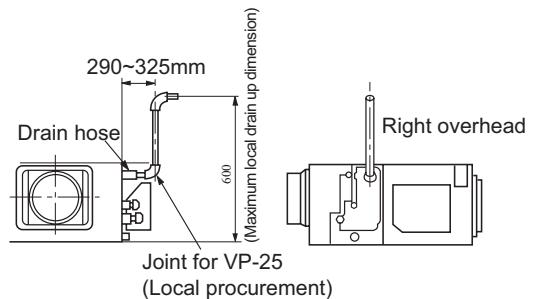
(c) For drain pipe, use hard PVC general purpose pipe VP-25(I.D.1") which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used for connection of the drain socket and drain hose (accessory).

(d) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30(11/4") or thicker pipe for this purpose.



(e) The hard PVC pipe put indoor side should be heat insulated. Do not ever provide an air vent.

(f) The height of the drain head can be elevated up to a point 500 mm above the ceiling, and when an obstacle exists in the ceiling space, elevate the piping to avoid the obstacle using an elbow or corresponding gadget. When doing this, if the stretch for the needed height is higher than 500 mm, the back-flow quantity of drain at the event of interruption of the operation gets too much and it may cause overflow at the drain pan. Therefore, make the height of the drain pipe within the distance given in the sketch below.



(g) Avoid positioning the drain piping outlet at a place where generation of odor may be stimulated. Do not lead the drain piping direct into a sewer from where sulfur gas may generate.

# Installation Procedure

Drain Pipe

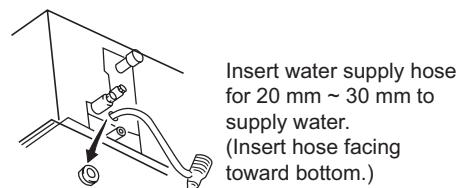
## Drainage Test

- (1) Conduct a drainage test after completion of the electrical work.
- (2) During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.
- (3) In case of a new building, conduct the test before it is furnished with the ceiling.
- (4) Be sure to conduct this test even when the unit is installed in the heating season.

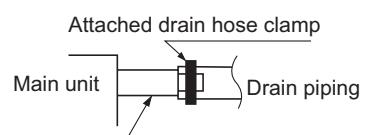
## Procedures

- (a) Supply about 1000 cc of water to the unit through the air outlet using a feed water pump.
- (b) Check the drain while cooling operation.

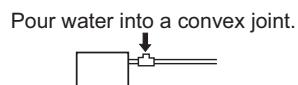
Before the electrical work has not been completed, connect a convex joint in the drain pipe connection to provide a water inlet. Then, check if water leaks from the piping system and that drain flows through the drain pipe normally.



Remove grommet.  
Make sure to install  
it back after test.



Drain situation can be checked with transparent socket



# Installation Procedure

Air Duct

## Installation work for air outlet ducts

Calculate the draft and external static pressure and select the length, shape and blowout.

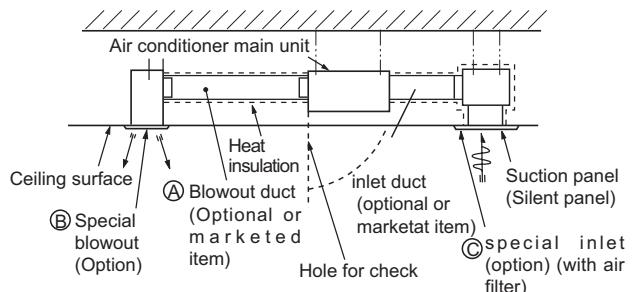
### A Blowout duct

- 2-spot, 3-spot and 4-spot with  $\phi$  200 type duct are the standard specifications.

**Note** (1) Shield the central blowout hole for 2-spot.

(2) Shield the blowout hole around the center for 3-spot.

- Limit the difference in length between spots at less than 2:1.
- Reduce the length of duct as much as possible.
- Reduce the number of bends as much as possible. (Corner R should be as larger as possible.)
- Use a band, etc. to connect the main unit and the blowout duct flange.
- Conduct the duct installation work before finishing the ceiling.



## Connection of suction, exhaust ducts

### a.Fresh air inlet

- Inlet can be selected from the side or rear faces depending on the working conditions.
- Use the rear fresh air inlet when the simultaneous intake and exhaust is conducted. (Side inlet cannot be used.)

### b.Exhaust (Make sure to use also the suction.)

Use the side exhaust port.

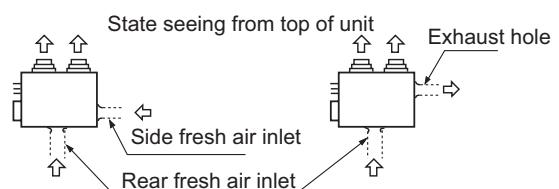


Fig.1

Fig.2

# Installation Procedure

## Electrical wiring

### ⚠ WARNING

#### DANGER OF BODILY INJURY OR DEATH

- TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS.
- GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

#### Precautions for electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

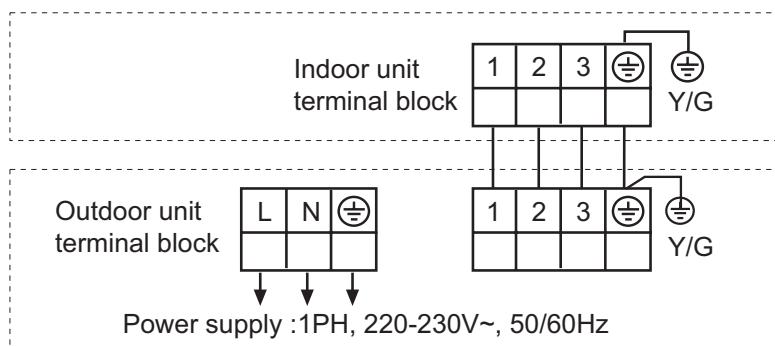
#### Selection of size of power supply and interconnecting wires

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item Model	Phase	Circuit breaker		Power source wire size (minimum) (mm <sup>2</sup> )	Earth leakage breaker	
		Switch breaker (A)	Overcurrent protector rated capacity (A)		Switch breaker(A)	Leak current(mA)
24K(Mid)						
28K						
36K						
48K(Mid)						
	1	40	30	6.0	40	30

#### Wiring connection

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.



# High ESP DUCT Installation Procedure

Indoor Unit

## NOTE

All wiring of this installation must comply with NATIONAL, STATE AND LOCAL REGULATIONS. These instructions do not cover all variations for every kind of installation circumstance. Should further information be desired or should particular problems occur, the matter should be referred to your local distributor.

## WARNING

BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND/OR PROPERTY DAMAGE.

### Before installation (Before finishing installation, do not throw the attached parts installation needs)

- Confirm the way to move the unit to the installation place.
- Before moving the unit to the installation place, do not remove their packages. When having to remove the package, use a soft material or protection board with rope to lift the unit assembly to avoid unit damage or bumping a scrape.

### Choose installation place

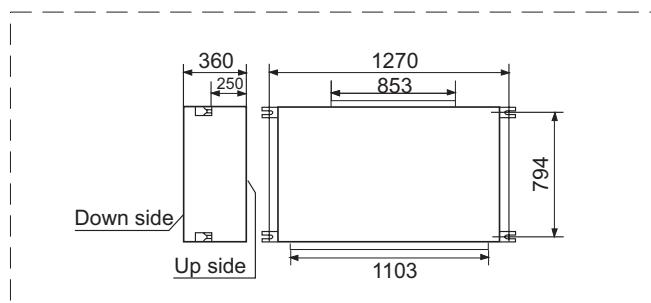
The chosen installation place should meet the following requirements and get the user's consent.

- Place ensures ideal airflow distribution.
- The passage of airflow has no obstacles.
- When importing outside air, it should be imported directly from outdoors. (If the pipe can not be extended, it also can not be imported from top)
- Place ensures enough space for maintenance.
- The pipe length between indoor and outdoor unit is in the permitted limit (referring to outdoor unit installation part).
- The indoor unit, outdoor unit, electric wire and connection wire is at least 1m away from television and radio. This is to avoid the image disturbance and noise caused by the above mentioned home appliance. (Even if 1m away, if the electromagnetic wave is too strong, it can also cause noise.)
- The indoor unit can install on the ceiling, which height is no more than 3m.
- Install and use the hoisting screw. Check if the installation place can bear the weight of unit assembly. If not certain, strengthen it before install the unit.



### Installation for indoor unit

#### 1.The position relation among hoisting screw (unit: mm)



#### 2.If necessary, cut the opening installation and checking needed on the ceiling. (If having ceiling)

- Before installation, finish the preparation work of all the pipes (refrigerant, drainage) and wire (wire controller connection wire, indoor and outdoor unit connection wire) of indoor unit, so that after installation, they can be immediately connected with outdoor unit.
- Cut the opening on the ceiling. Maybe it needs to strengthen the ceiling to keep the ceiling even and flat and prevent the ceiling from vibration. For details, please consult to the builder.

# Installation Procedure

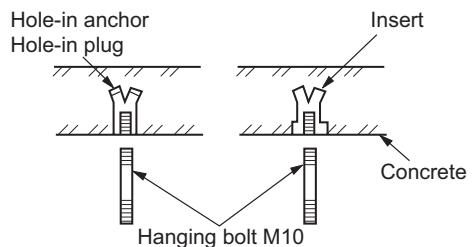
Indoor Unit

## 3. Hanger bolts installation

Use care of the piping direction when the unit is installed.(Use M10 screw bolt)

In order to bear the weight of the unit, for existed ceiling, using foundation screw bolt, and for new ceiling, using burying embedded screw bolt, burying screw bolt or spot supplied other parts.

Before going on installation, adjust the gaps with ceiling.



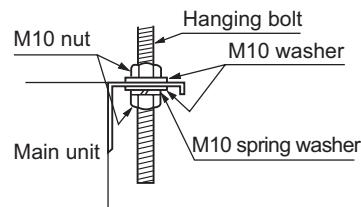
## 4. Installation of indoor unit

Fix the indoor unit to the hanger bolts.

If required, it is possible to suspend the unit to the beam, etc.  
Directly by use of the bolts without using the hanger bolts.

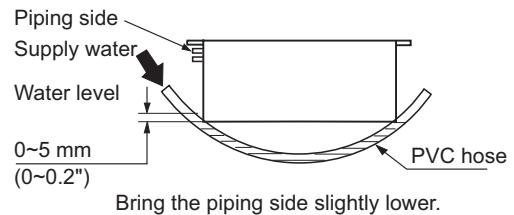
### Note

When the dimensions of main unit and ceiling holes does not match, it can be adjusted with the slot holes of hanging bracket.



## 5. Adjusting to the levelness

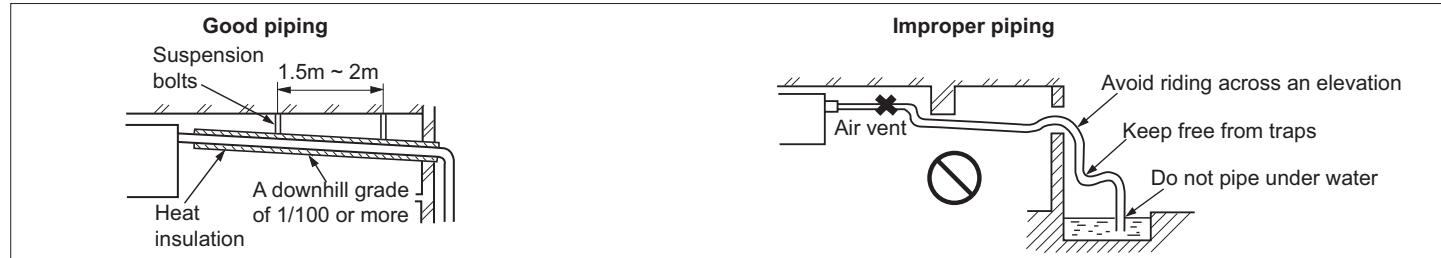
- (a) Adjust the out-of levelness using a level or by the following method.
- Make adjustment so that the relation between the lower surface of the unit proper and water level in the hose becomes as given below.
- (b) Unless the adjustment to the levelness is made properly, malfunctioning or failure of the float switch may occur.



# Installation Procedure

## Drain Piping

(a) Drain piping should always be in a downhill grade (1/50~1/100) and avoid riding across an elevation or making traps.

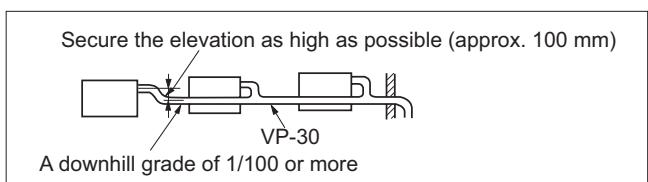
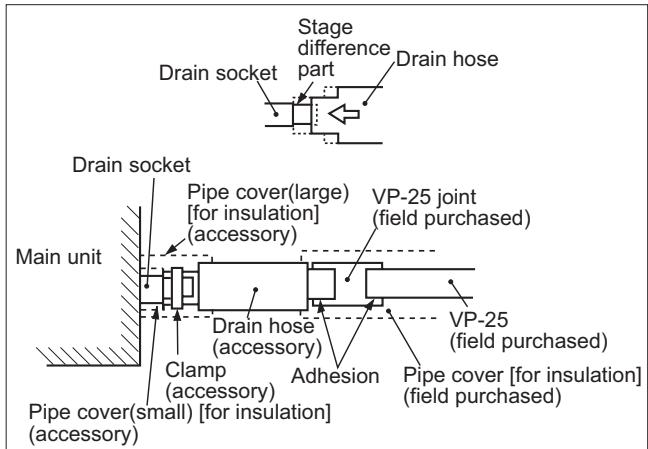


(b) When connecting the drain pipe to unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.

(c) For drain pipe, use hard PVC general purpose pipe VP-25(I.D.1") which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used connection of the drain socket and drain hose (accessory).

(d) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30(11/4") or thicker pipe for this purpose.

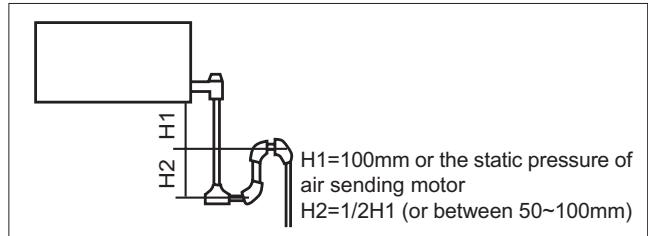
(e) The stiff PVC pipe put indoor side should be heat insulated.



(f) Avoid putting the outlet of drain hose in the places with irritant gas generated. Do not insert the drain hose directly into drainage, where the gas with sulfur may be generated.

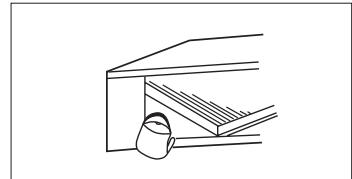
(g) Because the drain spout is at the position, which negative pressure may occur. So with the rise of water level in the drain pan, water leakage may occur. In order to prevent water leakage, we designed a backwater bend. The structure of backwater bend should be able to be cleaned. As the right figure shown, use T type joint. The backwater bend is set near the air conditioner.

As figure shown, set a backwater bend in the middle of drain hose.



## Drainage Test

- (1) Conduct a drainage test after completion of the electrical work.
- (2) During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.
- (3) In case of a new building, conduct the test before it is furnished with the ceiling.
- (4) Be sure to conduct this test even when the unit is installed in the heating season.



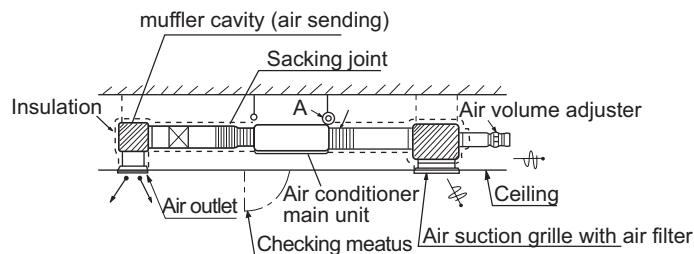
## Procedures

- (a) Supply about 1000 cc of water to the unit through the air outlet using a feed water pump.
- (b) Check the drain while cooling operation.

# Installation Procedure

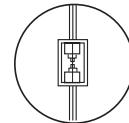
Air Duct

Please consult the after-sales service personnel for the choosing and installation of suction inlet, suction duct, discharging outlet and discharging duct. Calculating the design drawing and outer static pressure, and choose the discharging duct with proper length and shape.

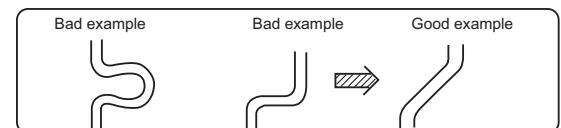


Enlarging chart of profile chart A

Vibration resistance hook

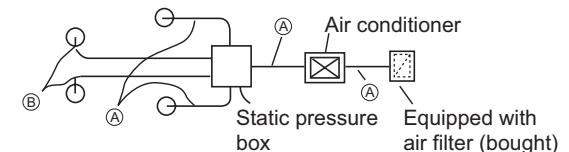


- The length difference among every duct is limited below 2:1.
- Reduce the length of duct as possible as can.
- Reduce the amount of bend as possible as can.
- Use heat insulation material to bind and seal the part connecting main unit and the flare part of air discharging duct. Perform duct installation work, before the fitment of ceiling.



## Calculation method of the dimension of the simple quadrate air duct

Presuming the unit length friction impedance of the duct is 1Pa/m, when the dimension of one side of the air duct is fixed as 250mm, as shown below:



	48K(High) 60K	
	Air volume	Duct
A	2400m³/h(40m³/min)	250x560(mm×mm)
B	600m³/h(10m³/min)	250x190(mm×mm)

## The calculation of duct resistance (the simple calculation is as follow table)

Straight part	Calculate as per 1m length 1Pa, 1Pa/m
Bend part	Each bend takes as a 3~4m long straight duct
Air out part	Calculate as 25Pa
Static pressure box	Calculate as 50Pa/each
Air inlet grille (with air filter)	Calculate as 40Pa/each

## The chosen chart of simple duct

Note: 1Pa/m=0.1mmAg/m

Shape Air volume Item m³/h(m³/n)	Square duct Dimension (mm×mm)
100	250 x 60
200	250 x 90
300	250 x 120
400	250 x 140
500	250 x 170
600(10)	250 x 190
800	250 x 230
1,000	250 x 270
1,200(20)	250 x 310
1,400	250 x 350
1,600	250 x 390

Shape Air volume Item m³/h(m³/n)	Square duct Dimension (mm×mm)
1,800(30)	250 x 430
2000	250 x 470
2400	250 x 560
3,000(50)	250 x 650
3,500	250 x 740
4,000	250 x 830
4,500	250 x 920
5,000	250 x 1000
5,500	250 x 1090
6,000(100)	250 x 1180

# Installation Procedure

Air Duct

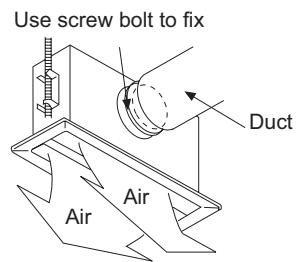
## The attentive matters in installation of air suction and discharging duct

- Recommend to use anti-frost and sound-absorbing duct. (locally bought)
- The duct installation work should be finished before the fitment of ceiling.
- The duct must be heat insulated.
- The specific air-discharging outlet should be installed at the place where the airflow can be reasonably distributed.
- The surface should leave a checking meatus for checking and maintenance.

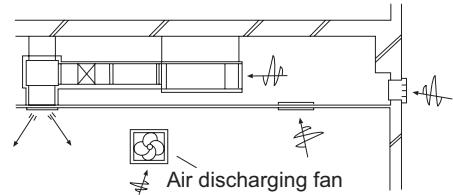
## The examples of improper installation

- Do not use air inlet duct and take the ceiling inner side as duct instead. The result is because of the irregular outer air mass, strong wind and sunshine, the humidity is increased.
- There may be water drop on the outside of duct. For cement and other new constructions, even if not taking ceiling inner side as duct, the humidity will also be so high. At this time, use glass fiber to perform heat preservation to the whole. (use iron net to bind the glass fiber)
- Maybe exceeding the unit operation limit (for example: when indoor dry bulb temperature is 35°C, wet bulb temperature 24°C), it may lead to overload of compressor.
- Affected by the capacity of air discharging fan, the strong wind in the outer duct and wind direction, when unit air sending volume exceeds the limit, the discharged water of heat exchanger will overflow, leading to water leakage.

Special air discharging outlet



Improper example



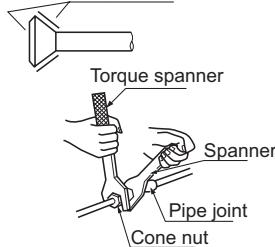
# Installation Procedure

## Refrigerant Pipe

The gas side pipe, liquid side pipe must be faithfully heat insulated, if no heat insulation, it may cause water leakage.

- The outdoor unit has been charged with refrigerant.
- When connect the pipe to the unit or dismantling the pipe from the unit, please follow the figure shown, use spanner and torque spanner together.
- When connect cone nut, the inner side and outside of cone nut should paste with refrigerant oil. Use hand to twist 3-4 rings, then fasten with spanner.
- Referring to Table I to confirm the fasten torque. Too tight may damage nut leading to leakage.
- Check if the connection pipe leaks, then do heat insulation treatment, as below figure shown.
- Only use seal cushion to bind the joint part of air pipe and heat insulation parts.

Paste the refrigerant oil here



Middle size seal cushion (accessory)  
(Use seal cushion to bind the pipe joint)

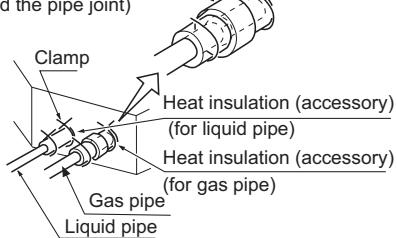
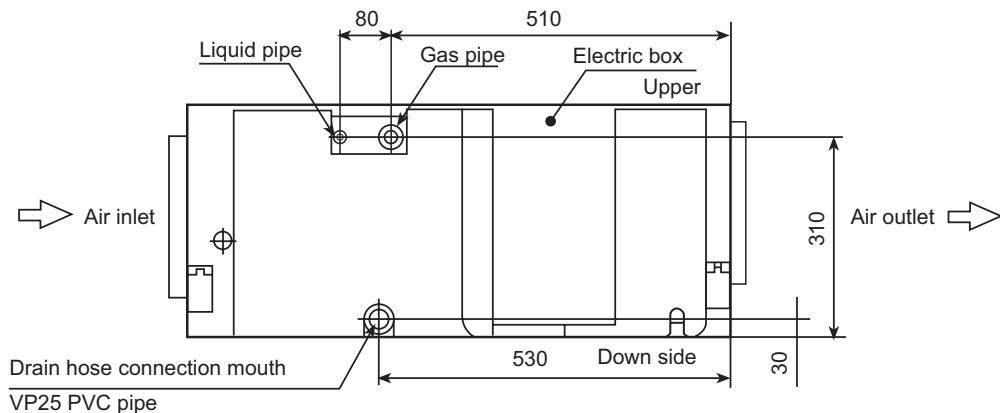


Table I

Specification of pipe	Tighten torque	Cone dimension A (mm)	Cone
Φ 9.52mm	3270~3990 N.cm (333~407 kgf.cm)	12.0~12.4	
Φ 15.88mm	6180~7540 N.cm (630~770 kgf.cm)	18.6~19.0	
Φ 19.05mm	9720~11860 N.cm (990~1210 kgf.cm)	22.9~23.3	



# Installation Procedure

## Electrical Wiring

### **⚠ WARNING**

#### **DANGER OF BODILY INJURY OR DEATH**

- TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS.
- GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

#### **Precautions for Electrical wiring**

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

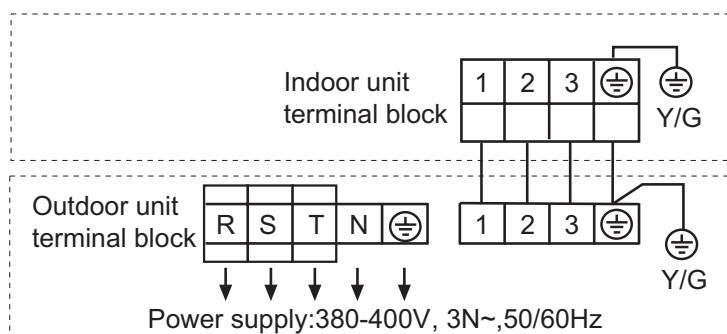
#### **Selection of size of power supply and interconnecting wires**

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item Model	Phase	Circuit breaker		Power source wire size (minimum) (mm <sup>2</sup> )	Earth leakage breaker	
		Switch breaker (A)	Overcurrent protector rated capacity (A)		Switch breaker(A)	Leak current(mA)
48K(High) 60K	3	30	20	4.0	30	30

#### **Wiring connection**

Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by terminals.



## 5. PCB photo,Wiring diagram and function description

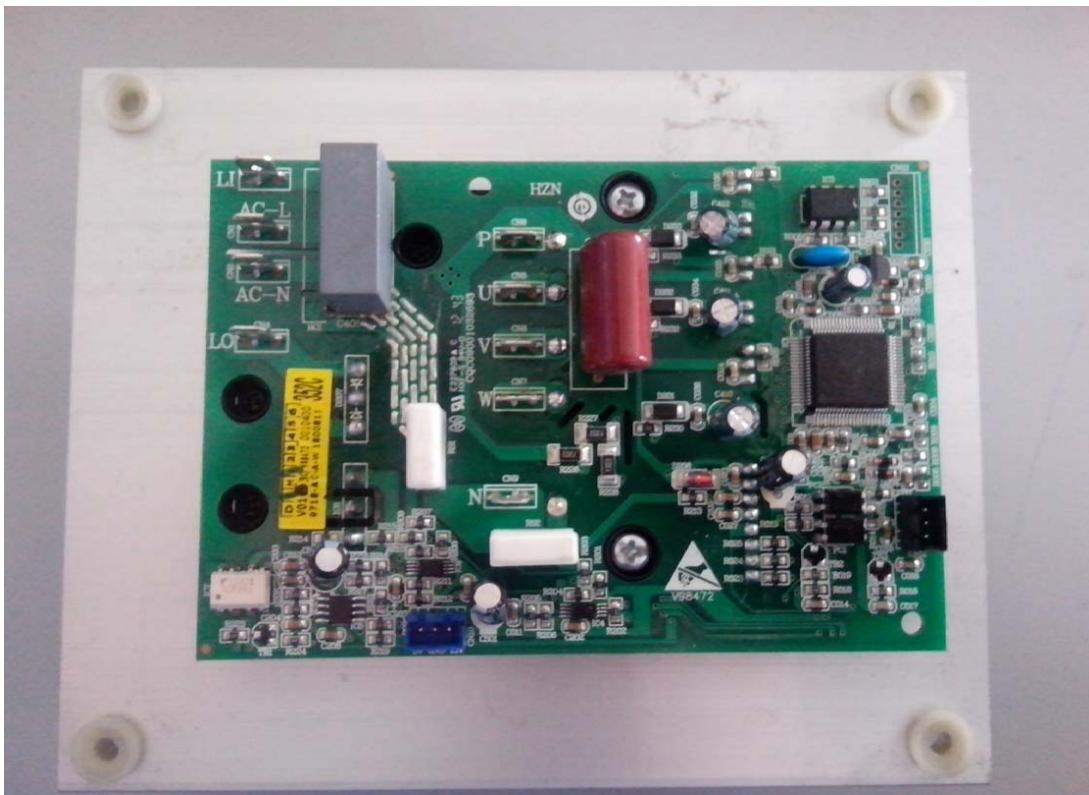
### 5.1 Outdoor unit

#### 5.1. 1. Outdoor PCB photo

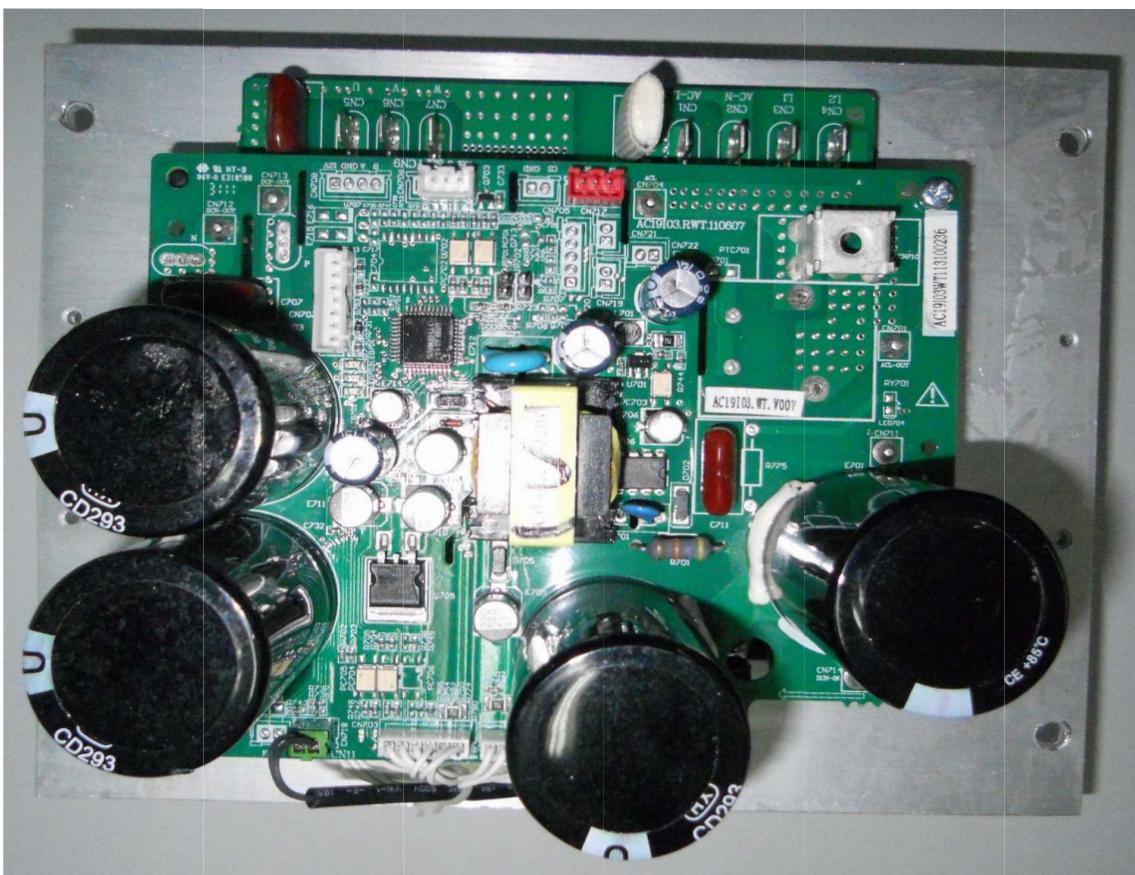
YHJYH024BAR-A-X PCB(0011800241C)



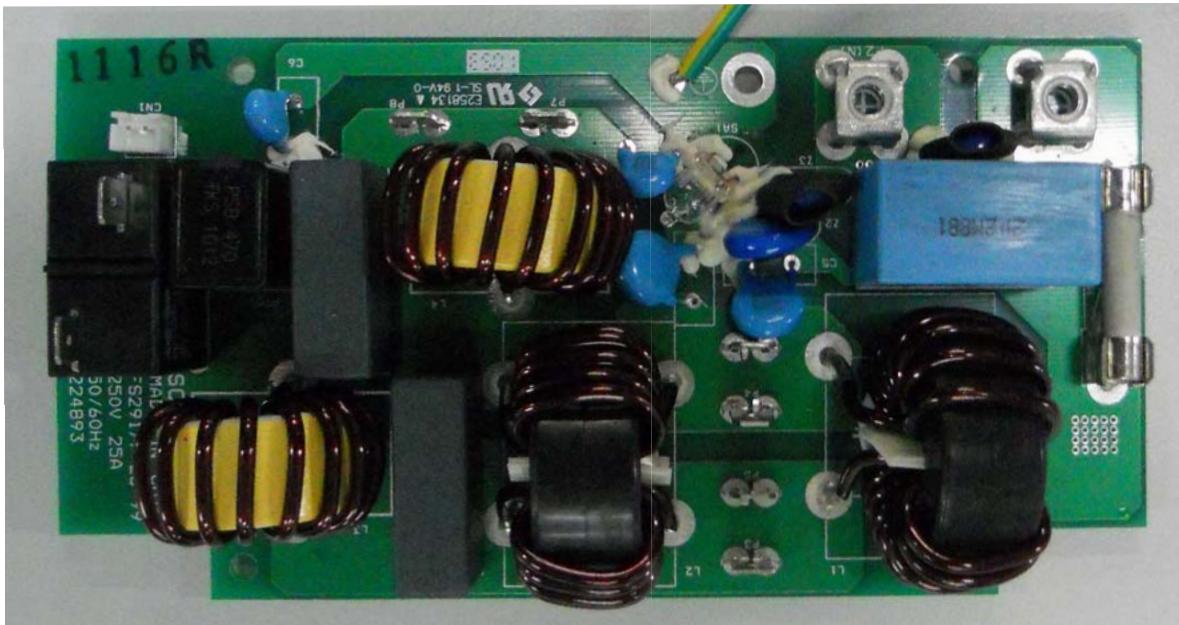
YHUJYH024BAR-A-X power module



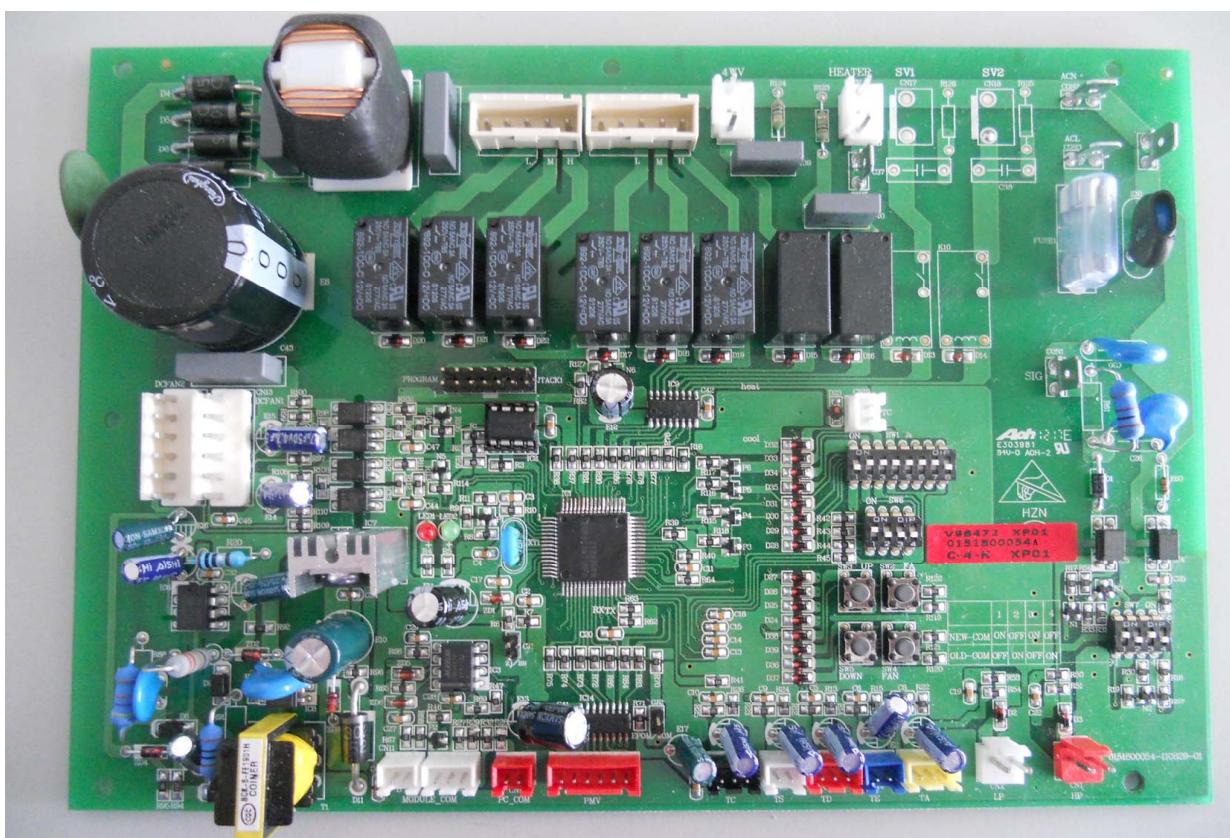
YHUJYH028/36BAR-A-X power module



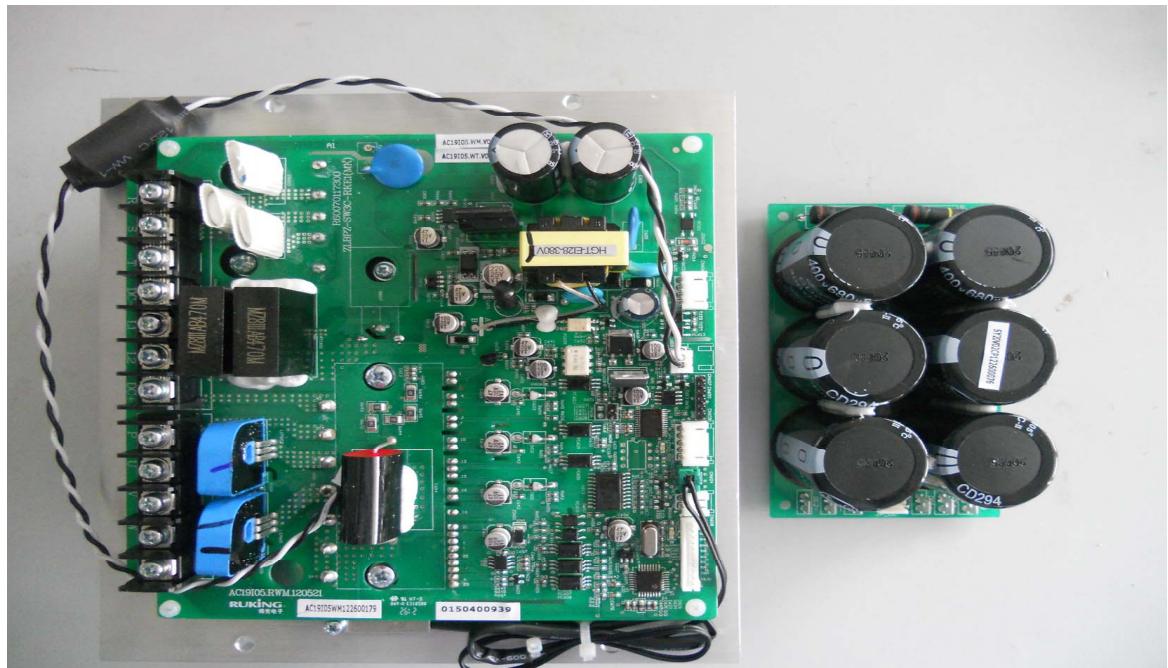
YHUJYH028/36BAR-A-X filter board



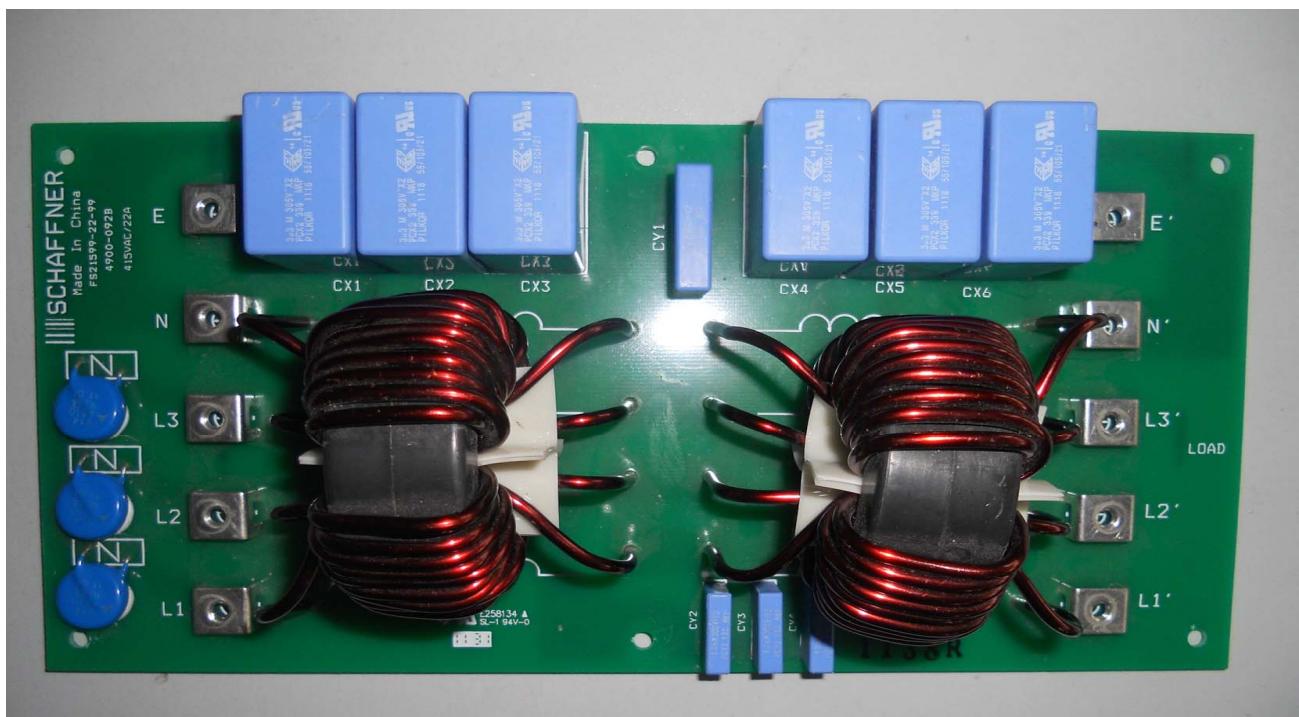
YHUJYH028/36/48BAR-A-X YHUJYH048BAS-A-X YHUJYH060BAS-A-X  
PCB(0151800054A)



YHUYH048BAS-A-X YHUYH060BAS-A-X  
power module



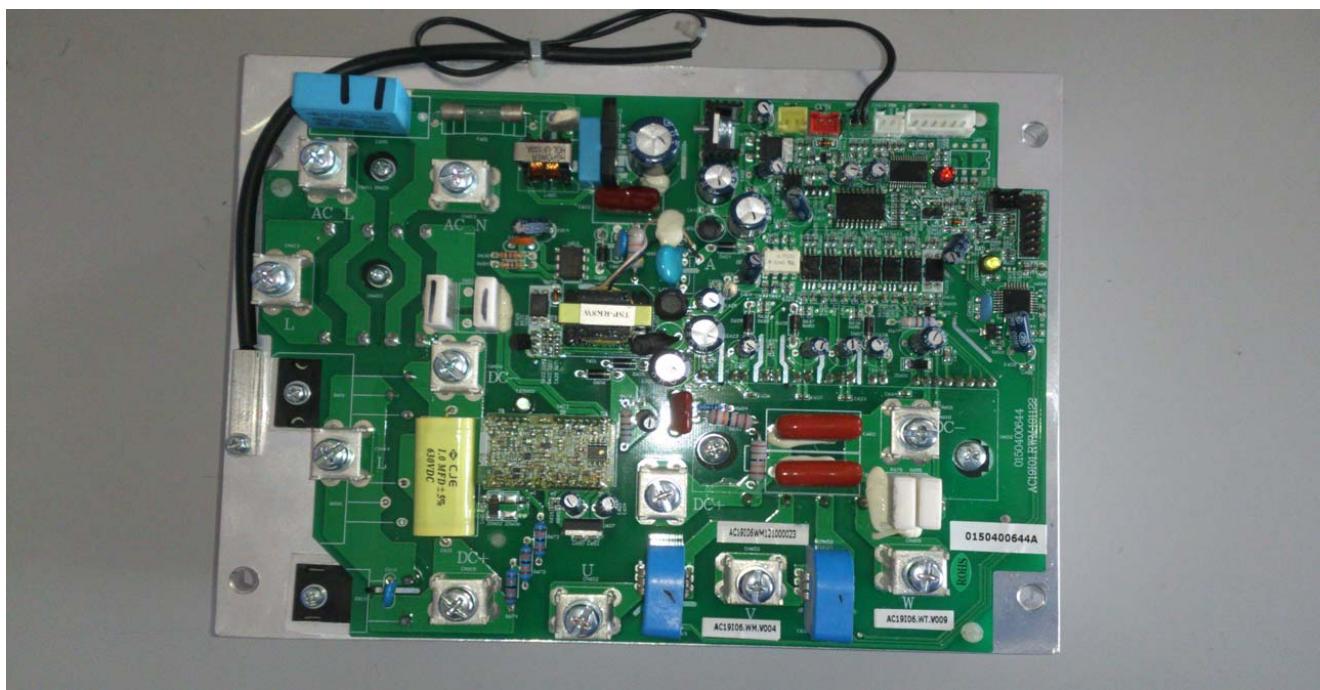
YHUYH048BAS-A-X YHUYH060BAS-A-X  
filter board



YHUJYH048BAR-A-X  
filter board

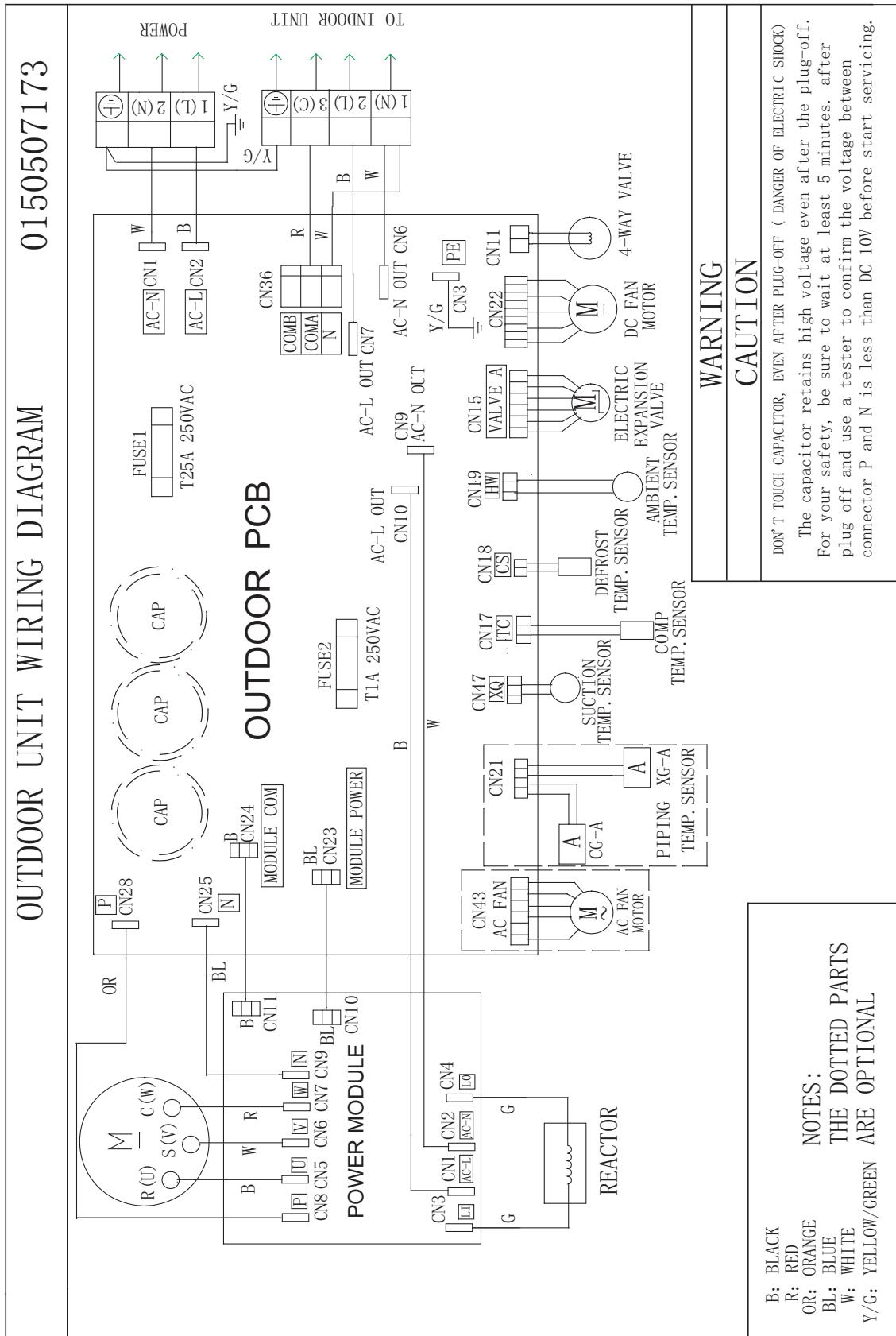


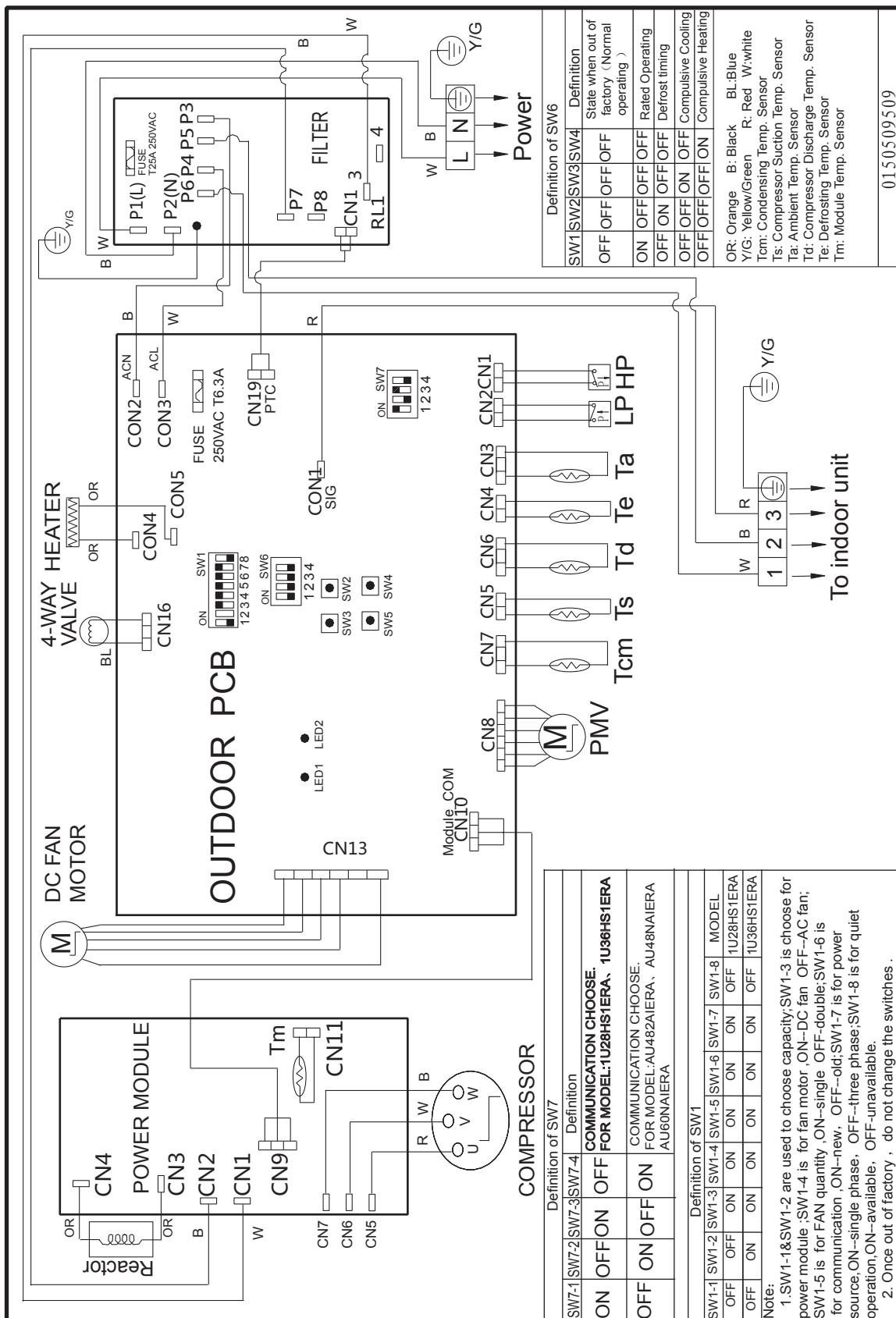
YHUJYH048BAR-A-X  
power module

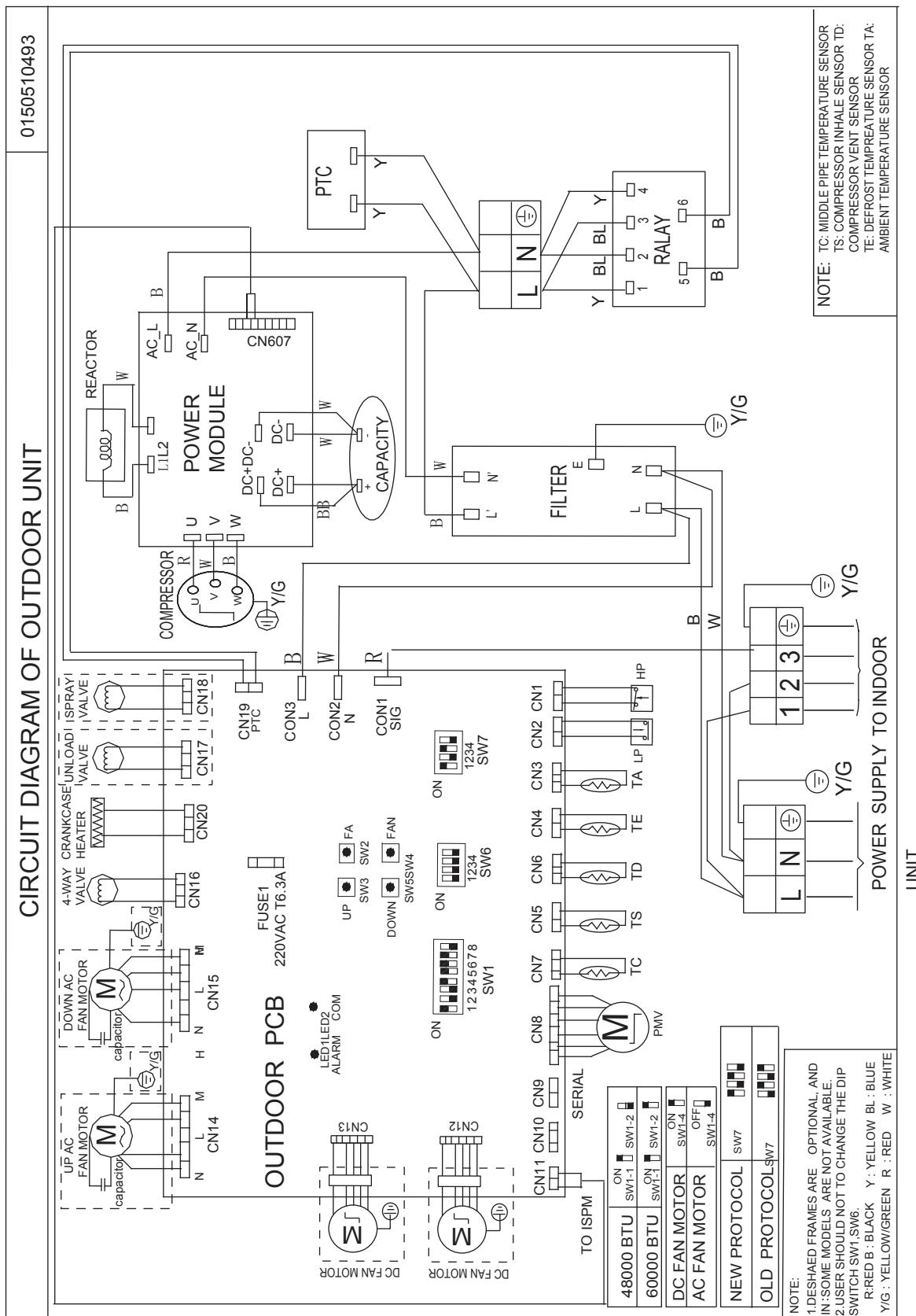


### **5.1.2. Wiring diagram**

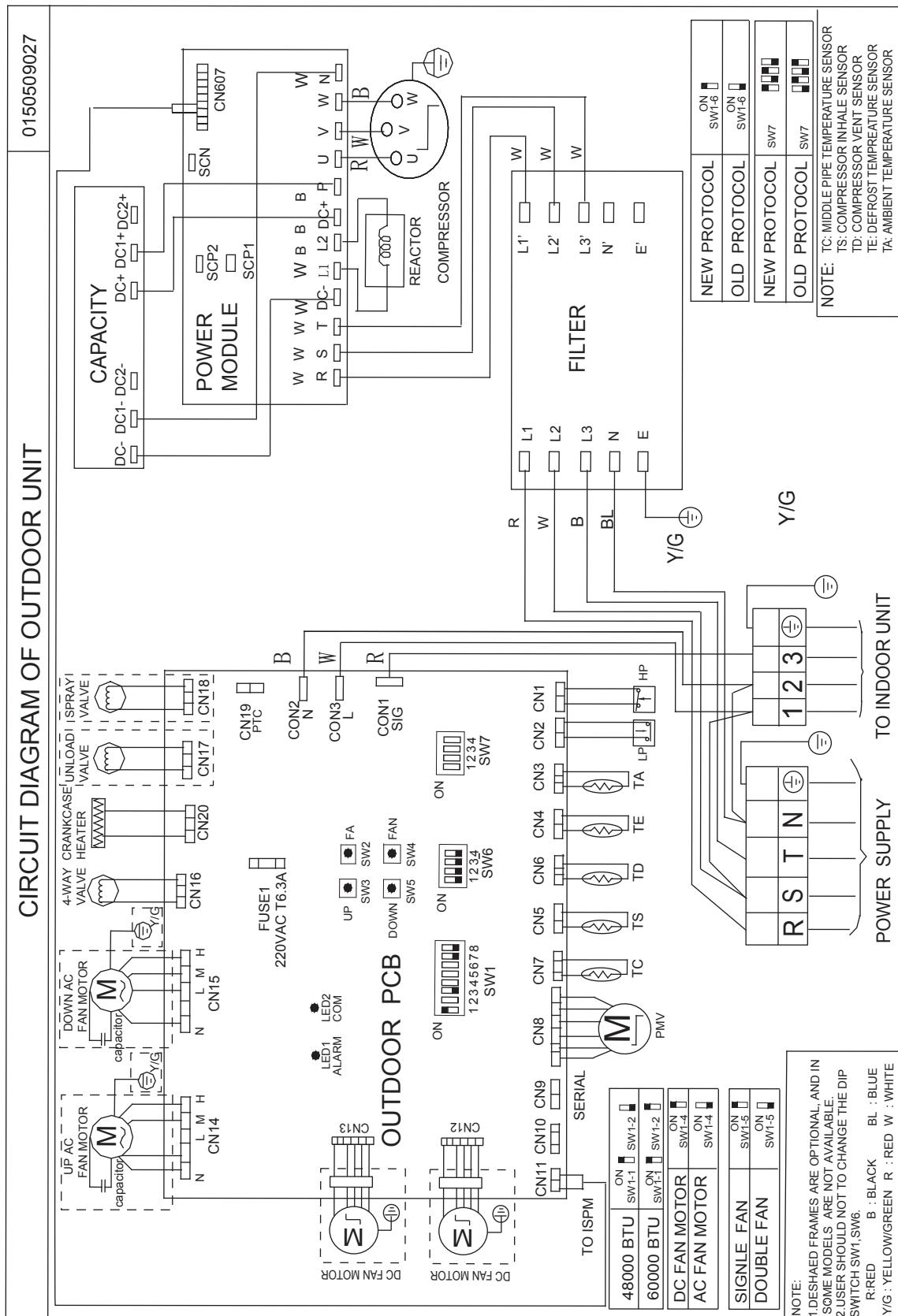
YHUYH024BAR-A-X







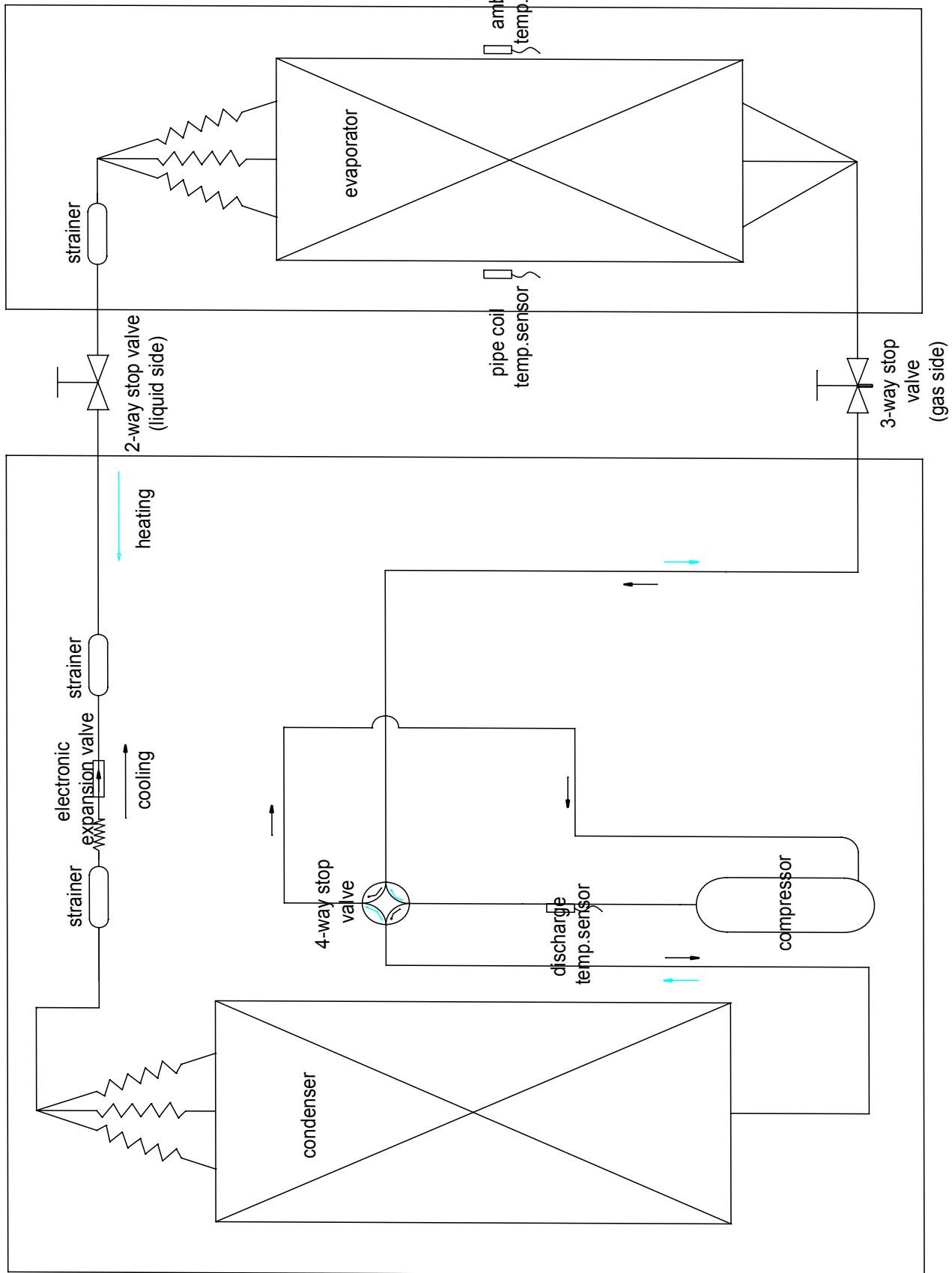
YHUUJYH048BAS-A-X YHUUJYH060BAS-A-X



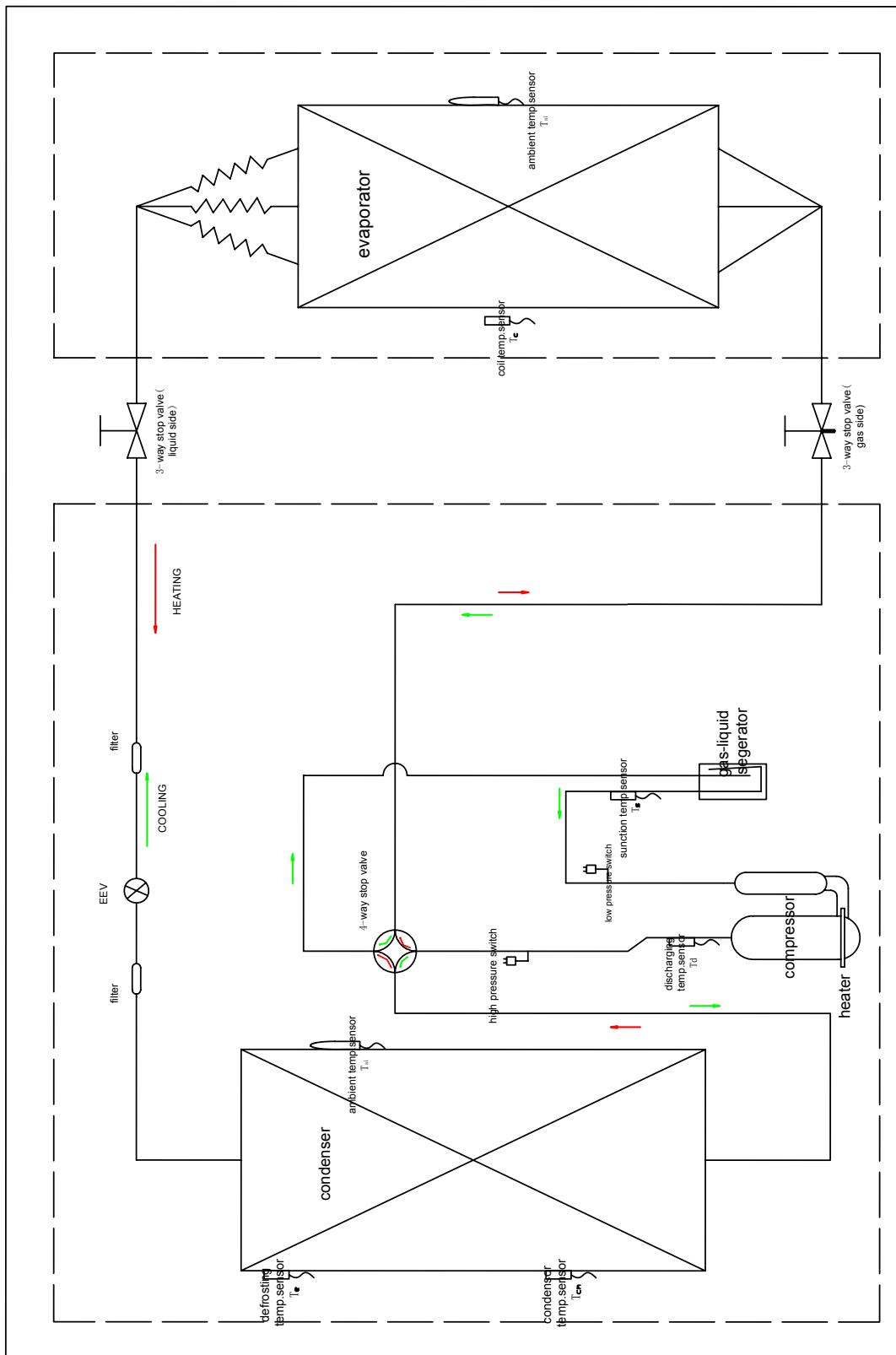
### 3. Main control functions

#### 3.1 Refrigerant diagram

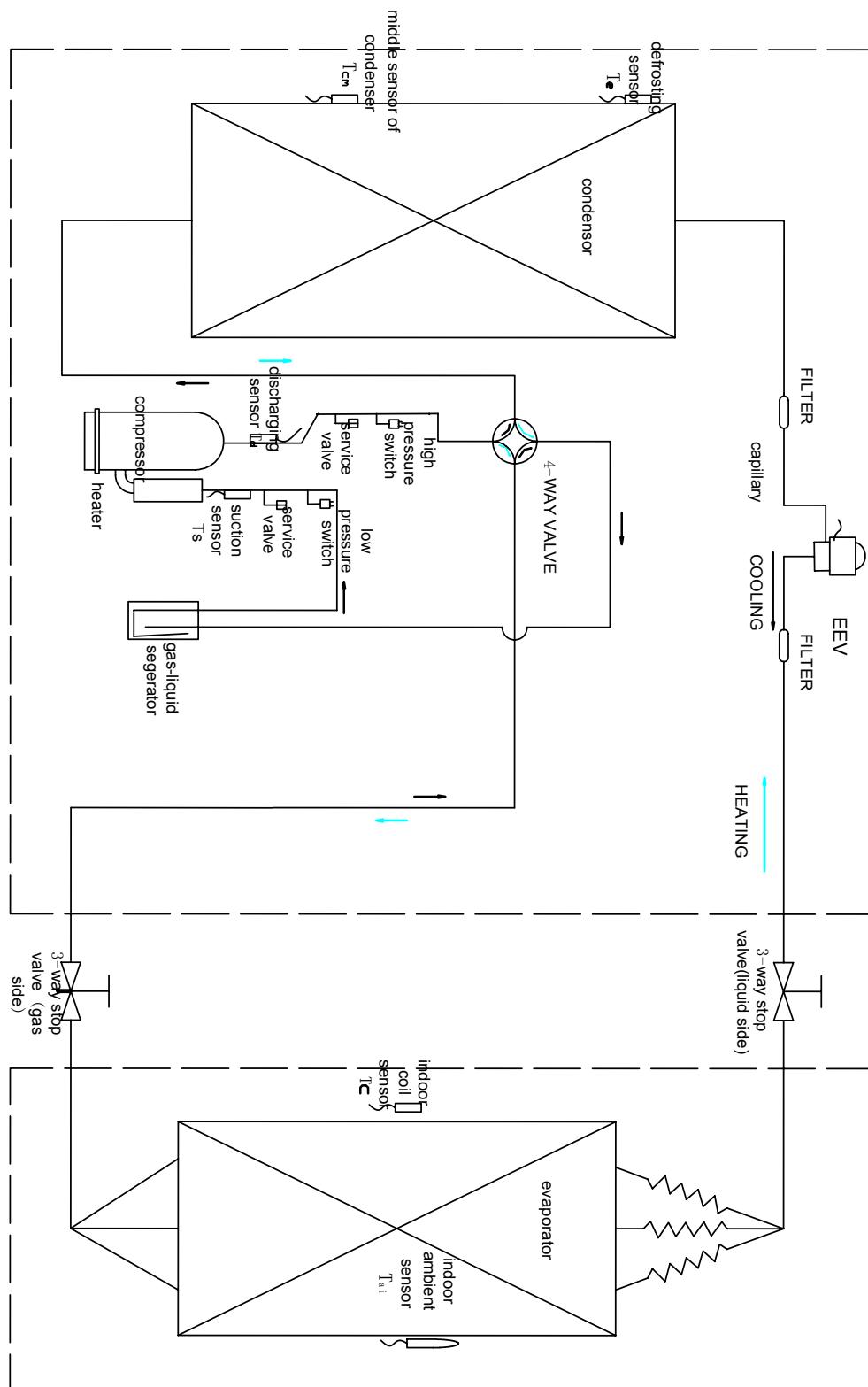
YHUUJYH024BAR-A-X



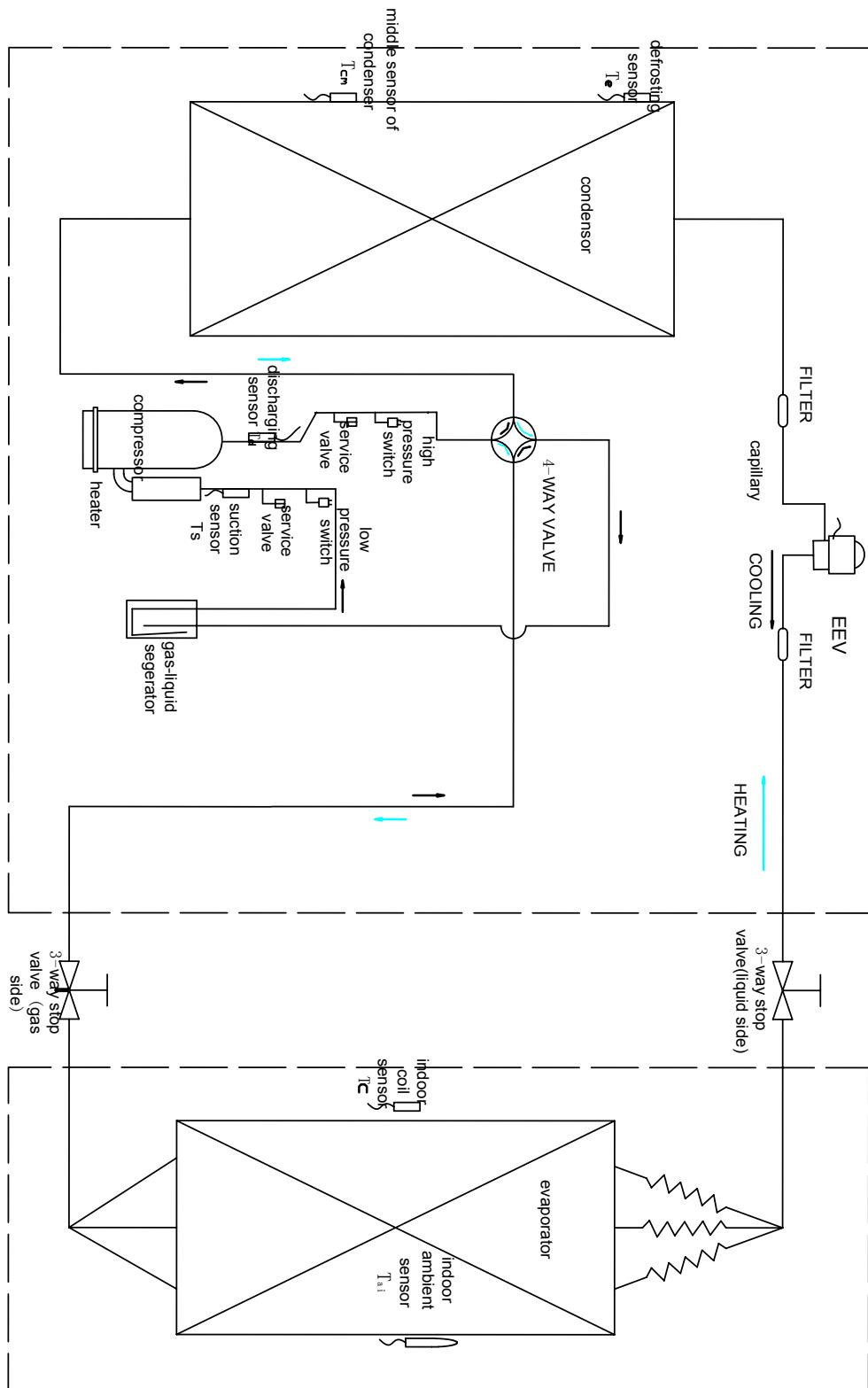
YHUJYH028BAR-A-X YHUJYH036BAR-A-X



YHUYH048BAR-A-X YHUYH048BAS-A-X



YHUJYH060BAS-A-X



**PCB 0151800054A dip switch setting**

YHUYJH028BAR-A-X YHUYJH036BAR-A-X YHUYJH048BAR-A-X

YHUYJH048BAS-A-X YHUYJH060BAS-A-X

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
0	0	---	---	---	---	---	---	28K outdoor unit
0	1	---	---	---	---	---	---	36K outdoor unit
1	0	---	---	---	---	---	---	48K outdoor unit
1	1	---	---	---	---	---	---	60K outdoor unit
---	---	1	---	---	---	---	---	power module choose1
---	---	0	---	---	---	---	---	power module choose2
---	---	---	1	---	---	---	---	DC fan motor
---	---	---	0	---	---	---	---	AC fan motor
---	---	---	---	1	---	---	---	single fan
---	---	---	---	0	---	---	---	double fan
---	---	---	---	---	1	---	---	new communication protocol
---	---	---	---	---	0	---	---	Id communication protocol
---	---	---	---	---	---	1	---	1 phase
---	---	---	---	---	---	0	---	3 phase
---	---	---	---	---	---	---	1	mute sounds mode valid
---	---	---	---	---	---	---	0	mute sounds mode invalid

SW6-1	SW6-2	SW6-3	SW6-4	Description
0	---	---	---	normal condition running(default)
1	---	---	---	rated condition running
---	0	---	---	normal defrosting(default)
---	1	---	---	compulsory defrosting
---	---	0	---	normal cooling(default)
---	---	1	---	compulsory cooling
---	---	---	0	normal heating(default)
---	---	---	1	compulsory heating

### 3.2 Outdoor frequency control

3.2.1 Compressor running frequency range: 30-91RPS.

### 3.3 Electronic expansion valve (EEV) control:

#### 3.3.1 Electronic characteristic:

Max. open angle	500 Pulse
Driving speed	PPS

#### 3.3.2 Initialization of EEV

EEV driving speed: open direction: 32MS; close direction: 32MS

#### 3.3.3 Open angle limit of EEV

	Unit stop	Adjustable upper limit
Cool/dry	250 (E)	480 (E)
heat	250 (E)	480 (E)

#### 3.3.4 6、Standard open angle control

In Cool/Dry mode, standard open angle: outdoor ambient temp. $\geq 22^{\circ}\text{C}$ , 260pulse (E)

Outdoor ambient temp. $\leq 22^{\circ}\text{C}$ , 210pulse (E)

In heat mode, standard open angle: outdoor ambient temp. $\geq 6^{\circ}\text{C}$ , 240pulses (E)

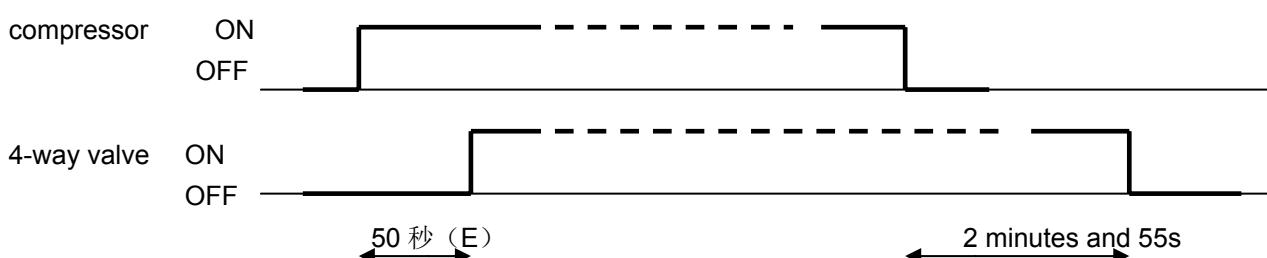
Outdoor ambient temp.  $\leq 6^{\circ}\text{C}$ , 160pulse (E)

#### 3.3.5 When discharging temp. Td is too high or too low, modify the EEV angle

mode	Modification process	Max. modification
Cooling	If TD>106 degree and -1 degree /2 minutes, open angle keeps between 106-50 .	-3
Cooling	If TD<50 degree and +1 degree /2 minutes, open angle keeps between 50-106.	+3
Heating	If TD>100 degree and -1 degree /2 minutes, open angle keeps between 100-50 .	-3
Heating	If TD<50 degree and +1 degree /2 minutes, open angle keeps between 50-100	+3

### 3.4 4-way valve control in heating

50s later after compressor start up, the 4-way valve start to operate. When compressor stops or unit is not in heating mode, the 4-way valve is closed after compressor stop for 2 minutes and 55s.



### 3.5 Control of defrosting in heating

In heating mode, defrosting temp. sensor Te will check the frosting condition of outdoor heat

exchanger and make defrosting control.

### 3.5.1 Enter condition:

After the unit is in heating for 10 minutes and compressor run for 45 minutes in all , according to check the defrosting temp. sensor Te and outdoor ambient temp. sensor Tao, if they can meet the following condition, entering in defrosting operation.

- 1、  $5^{\circ}\text{C}$  (E) <Tao,  $\text{Te} \leq -6^{\circ}\text{C}$  (E);
- 2、  $-6^{\circ}\text{C}$  (E)  $\leq \text{Tao} \leq 5^{\circ}\text{C}$ ,  $\text{Te} \leq C \times \text{Tao} - \alpha$ ;

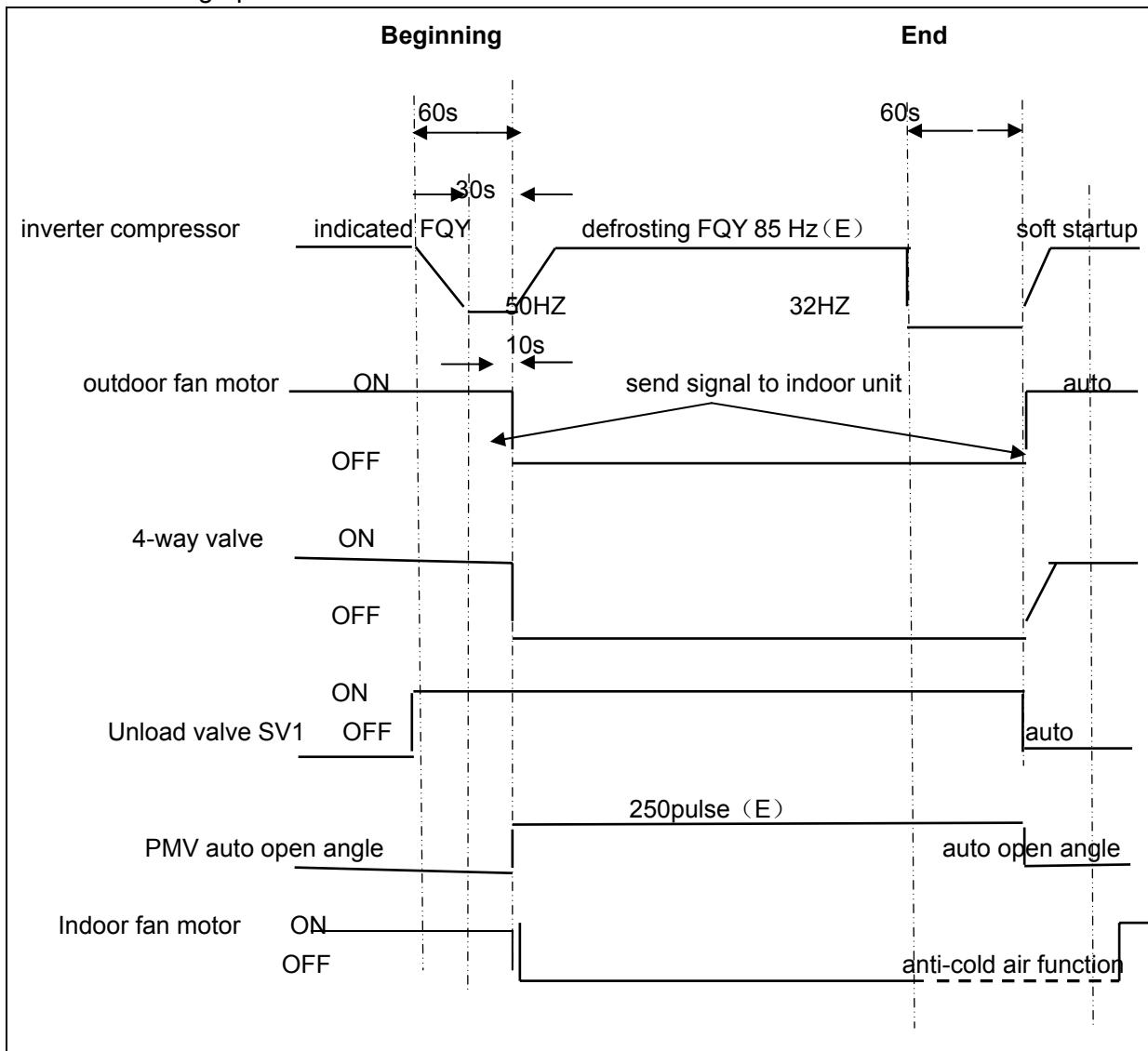
Herein :  $\alpha=8$  (E) ;C:  $\text{Tao} < 0^{\circ}\text{C}$ ,  $C=0.8$ ;  $\text{Tao} \geq 0^{\circ}\text{C}$ ,  $C=0.6$

3.Tao<-6°C, Te≤-15°C (E) and defrosting compressor run for 48 minutes in all.

### 3.5.2 Cancel condition:

It will take max. 10minutew from beginning defrosting to quit it. Te sensor will measure the condition of outdoor heat exchanger, if the temp. is over  $10^{\circ}\text{C}$  for 60s or is up to  $14^{\circ}\text{C}$  for 30s, the defrosting will be over.

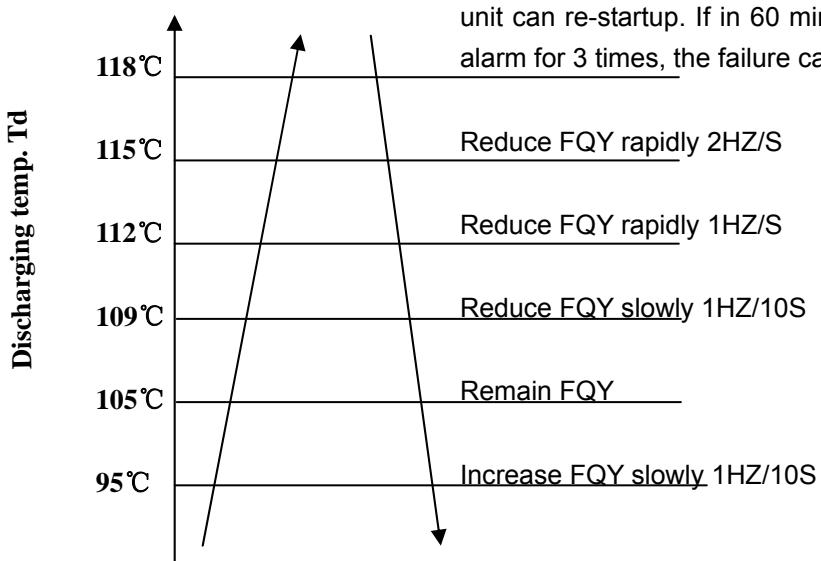
### 3.5.3 Defrosting operation flow chart:



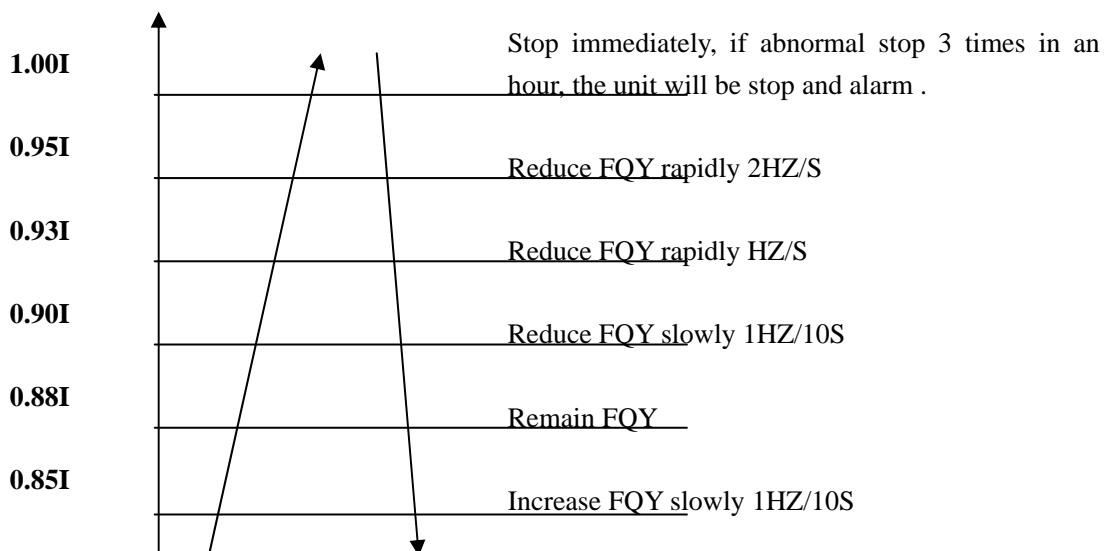
### 3.6 Frequency control when Td is too high

Purpose : make compressor frequency control if the discharging temp. is too high, to low the discharging temp. efficiency and ensure the system can run normally.

If keeps for 10s, the unit stops. 3 minutes later, the unit can re-startup. If in 60 minutes the unit occurs alarm for 3 times, the failure can be eliminated



### 3.7、 Frequency control when there is CT over current



### 3.8 Oil return operation control

#### 3.8.1 Entering condition

When the compressor running frequency is lower than 58Hz continuously in all and outdoor unit Tcm is lower than 50 degree for 5 hours, the system will enter oil return operation. In the course of mode changeover, manual unit stop or protective unit stop, the time will be accumulative. After compressor restarts up, the time will counted continuously. In counting time for 5 hour, if the compressor running frequency is over 80Hz for 10 minutes continuously, the time will be cleared. Also after the heating defrosting , the time will be cleared.

### 3.8.2 Procedure

Cooling mode: refer to “the oil return procedure in cooling mode”

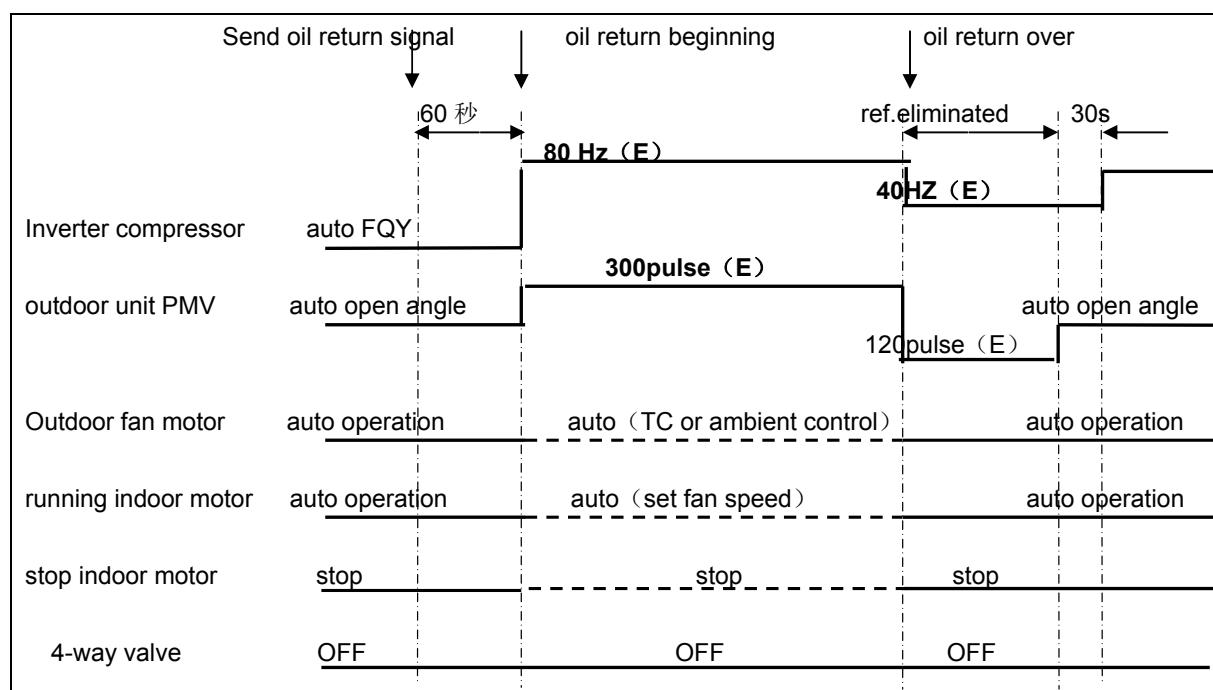
Heating mode: refer to “the oil return procedure in heating mode”

### 3.8.3 The protection treatment in oil return operation:

In the course of cooling oil return, because of all kinds of protection or abnormal unit stop, after the unit restart, the time will not be cleared, the system need another oil return operation. In the refrigerant flow course in oil return of cooling mode or after oil return, and within 5 minutes after the refrigerant being eliminated is over, the anti-freeze protection and low pressure protection are invalid, other protection is valid.

In the course of heating oil return ,because of all kinds of protection or abnormal unit stop, the system need not another oil return operation after the unit stop for 3 minutes and enter in heating mode directly. In the course of changing to cooling oil return, the anti-freeze protection and low pressure protection are invalid, other protection is valid.

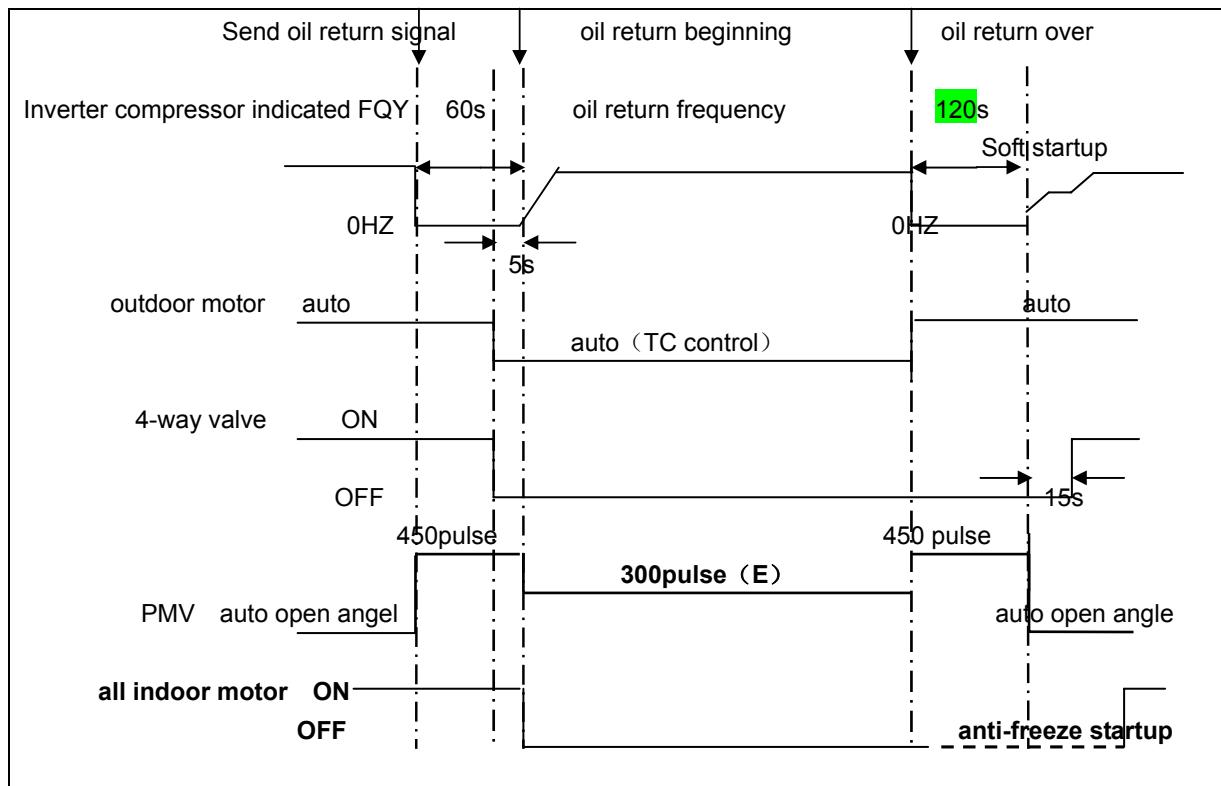
#### **Oil return procedure in cooling mode:**



Quit condition of oil return:

OR & 1 minute later after oil return is over  
 OR  $T_d - T_{cm} > 30^\circ\text{C}$   
 $T_s - T_c > 30^\circ\text{C}$   
 $T_c < -35^\circ\text{C}$   
Max. 10 minutes

#### Oil return procedure in heating mode:

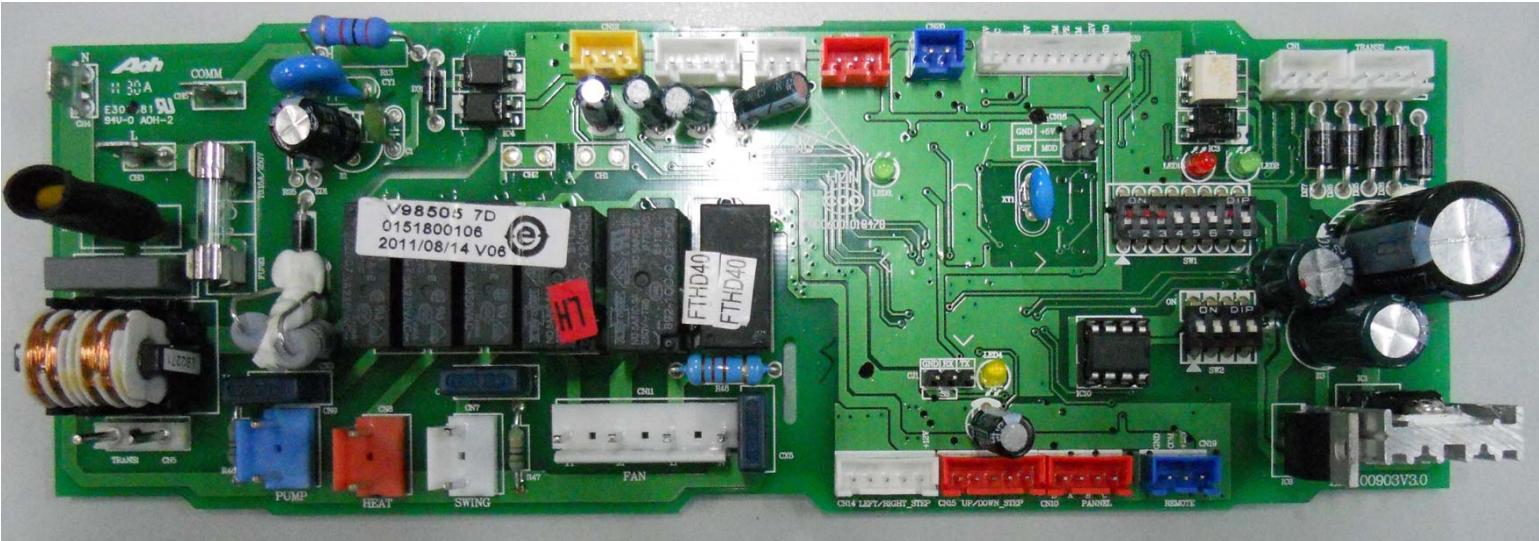


#### Quit condition of oil return

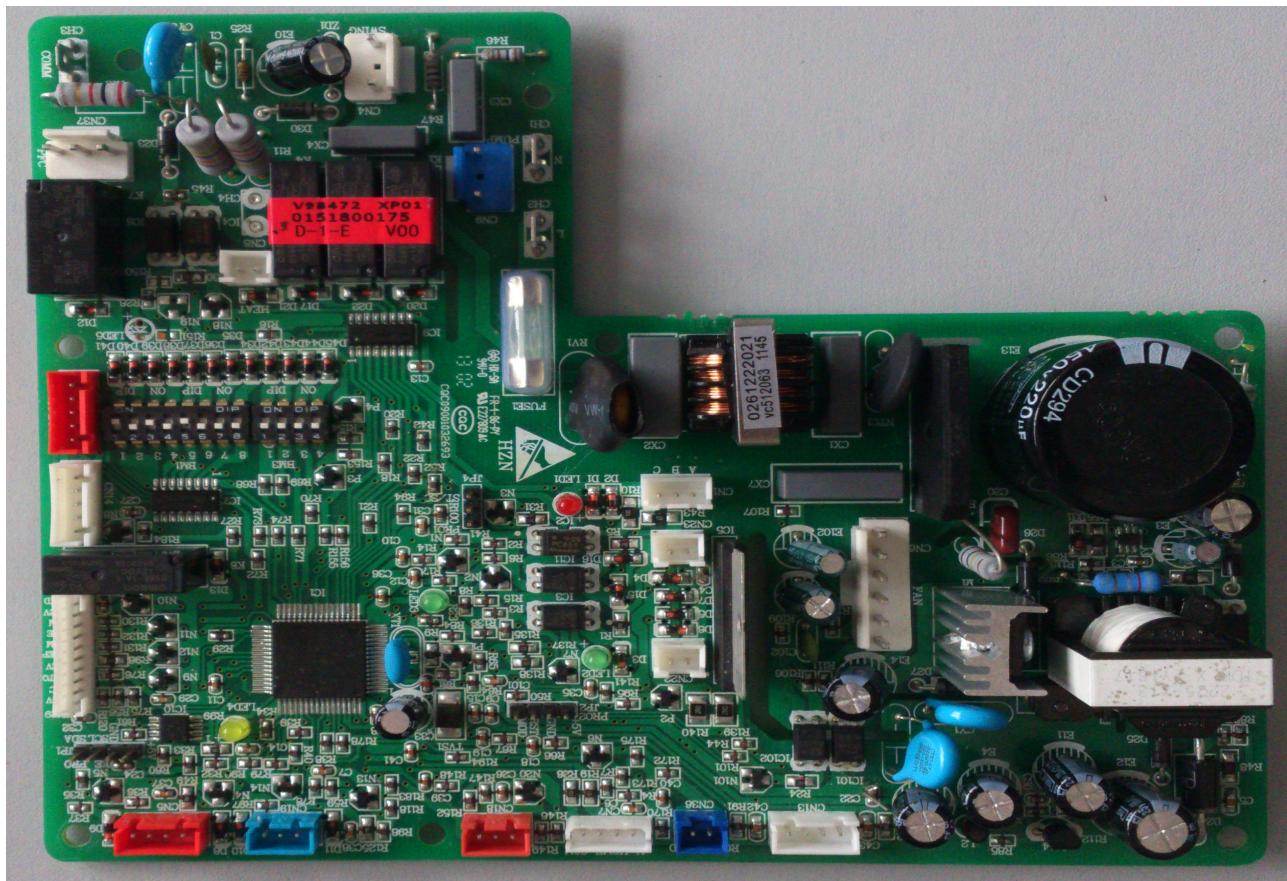
Max. 9 minutes (E)  
 OR  
 &      OR      Td - Tcm < 20°C for 30s (5 minutes later, begin to count)  
                   Ts - Tc < 15°C for 30 秒 (5 minutes later, begin to count)  
                   Running for min. 5 minutes (E)

## 5.2 Indoor unit

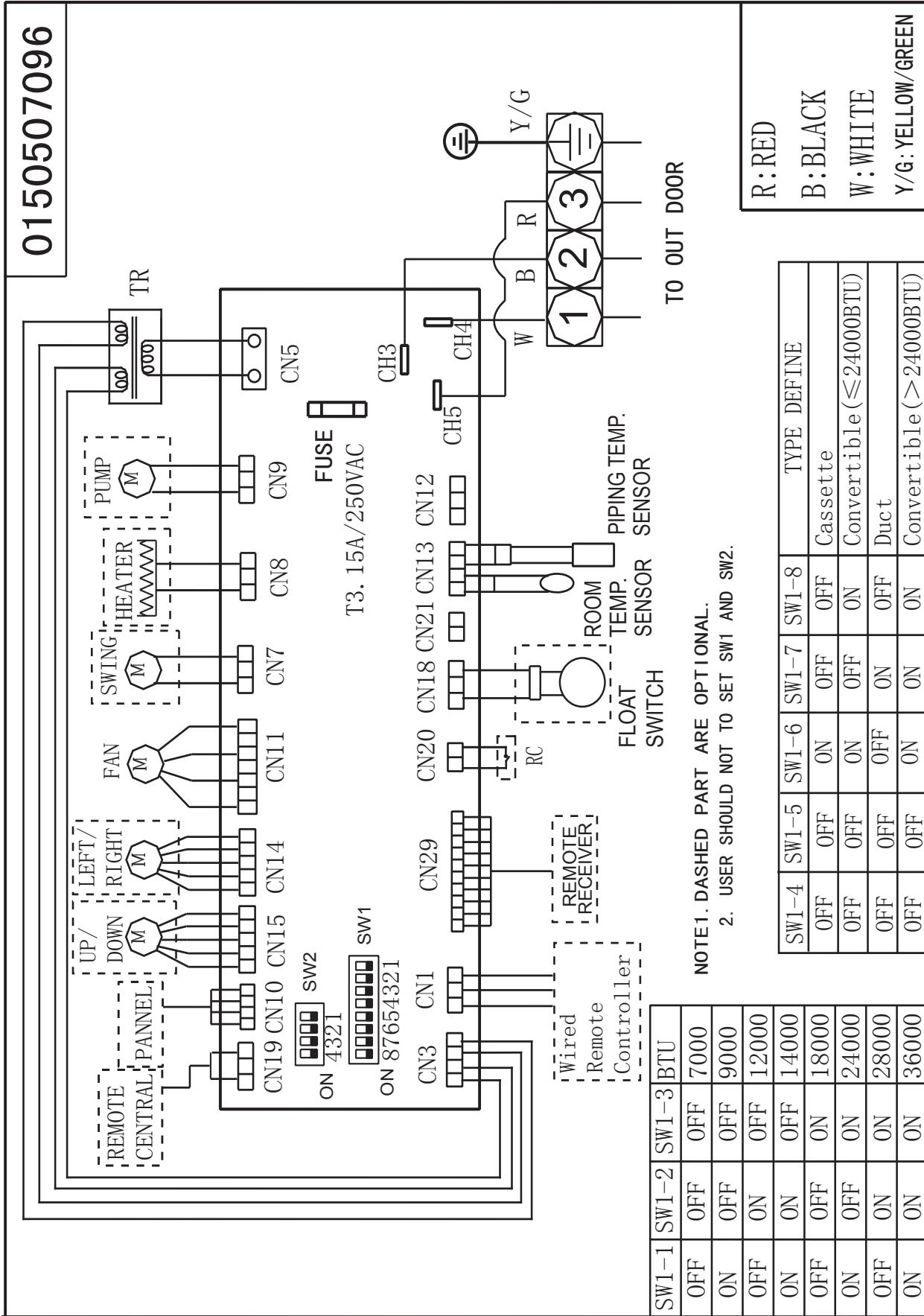
### 5.2.1 PCB(0151800106) for 28/36/48/60 indoor unit



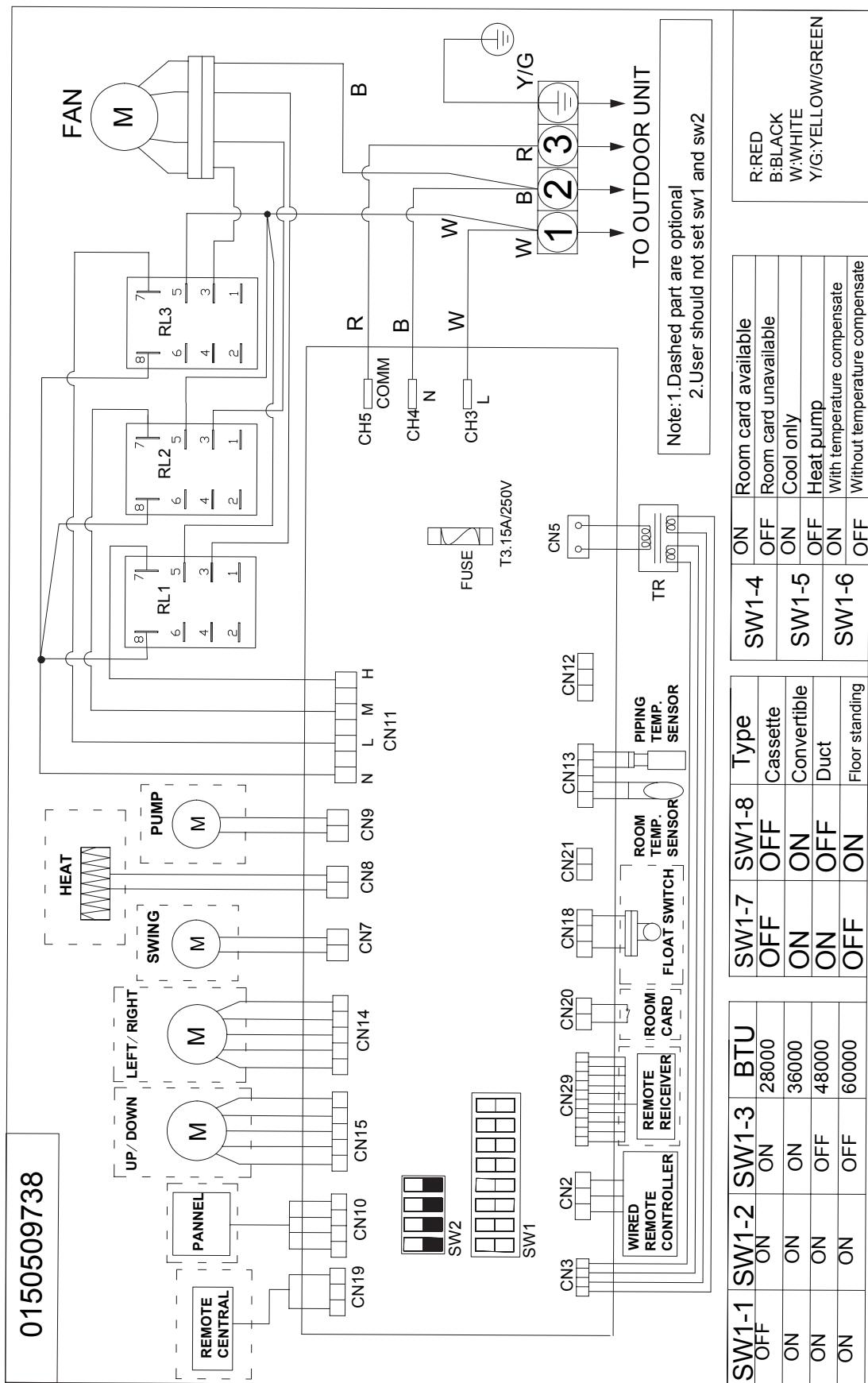
YHDJXH018BAM--GX



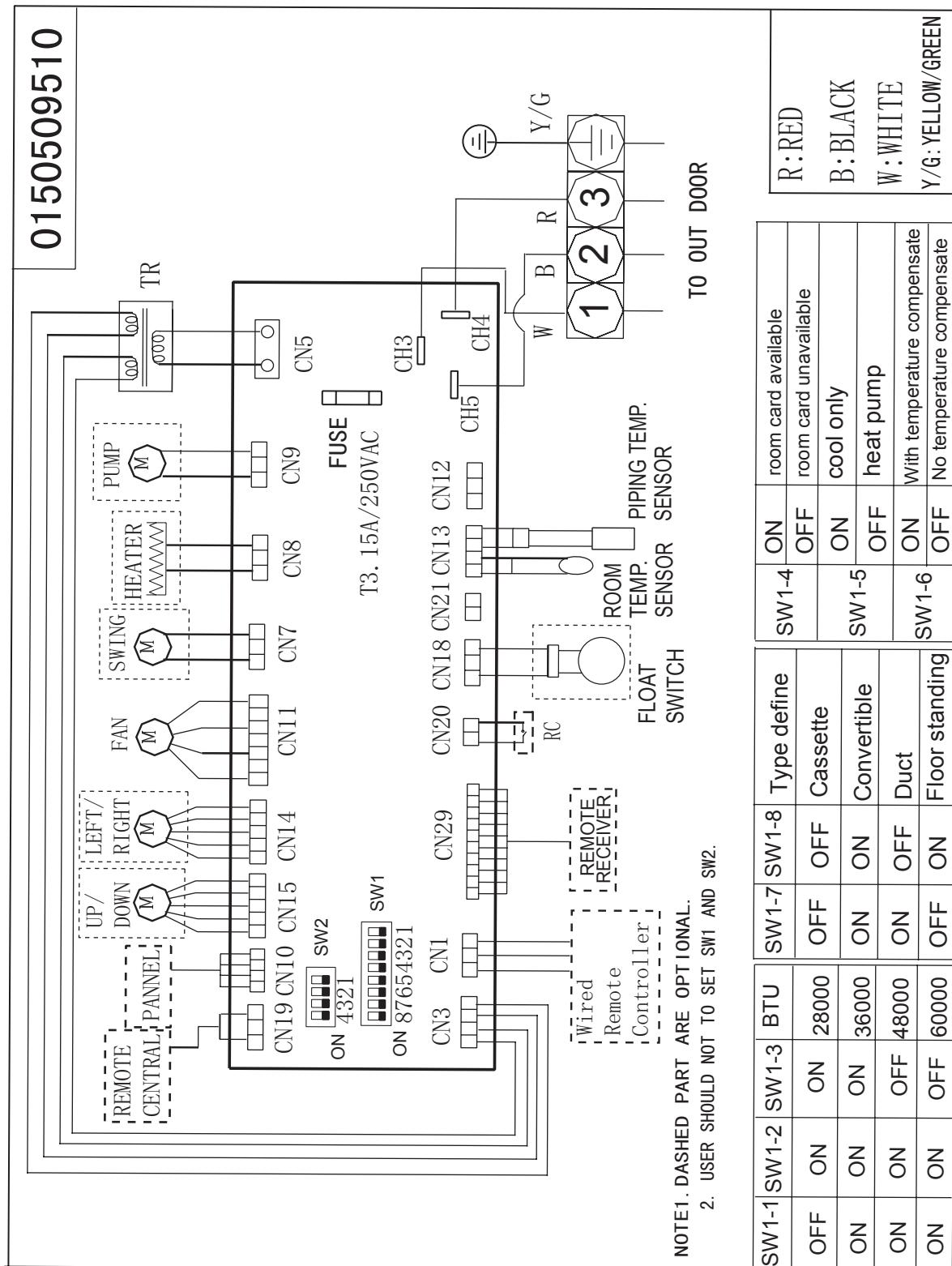
5.2.2. YHKJXH012/18/24BAM--FX YHFJXH012/18/24BAM--FX YHEJXH024BAR--GX



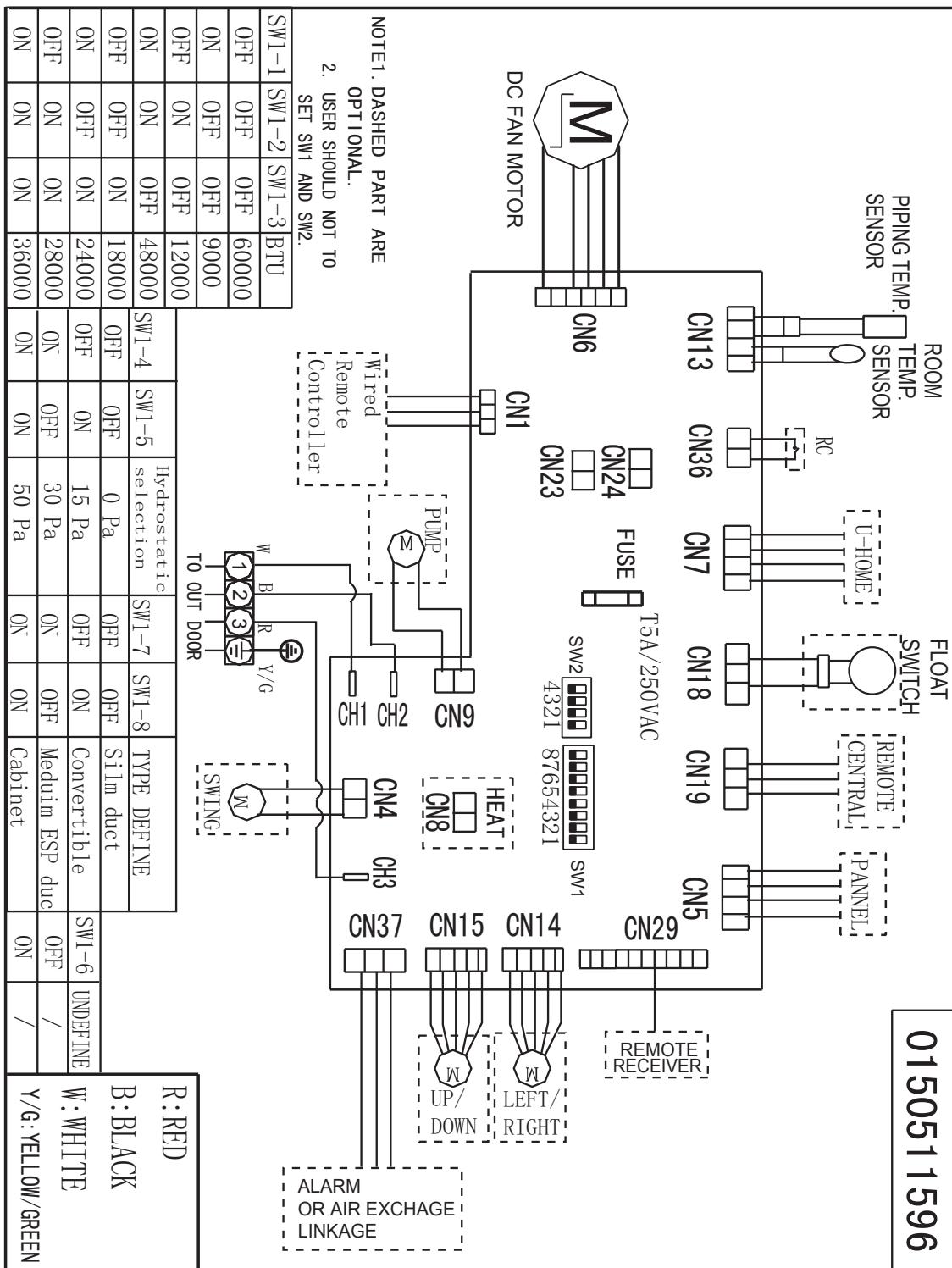
YHEJXH028/36/48BAR--GX



YHKJXH028/36/48/60BAR--FX YHFJXH028/36/48BAR--FX  
YHGJXH048/60BAR--GX



# YHDJXH012/18/24BAM--GX



## 5.2.5. Electrical Control Functions For Cassette and Convertible type

### 1. Dip switch functions:

YHKJXH\*BAM--FX, YHFJXH\*BAM--FX, YHDJXH024-060BAR--GX

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
1	0	---	---	---	---	---	---	24K indoor
0	1	---	---	---	---	---	---	28K indoor
1	1	---	---	---	---	---	---	36K indoor
1	1	---	---	---	---	---	---	48K indoor
1	1	---	---	---	---	---	---	60K indoor
---	---	---	0	---	---	---	---	Room card invalid
---	---	---	1	---	---	---	---	Room card valid(default)
---	---	---	---	0	---	---	---	Cooling only
---	---	---	---	1	---	---	---	Heat pump (default)
---	---	---	---	---	0	---	---	Without tempetature compensation
---	---	---	---	---	1	---	---	With tempetature compensation
---	---	---	---	---	---	1	0	Duct
---	---	---	---	---	---	0	0	Cassette
---	---	---	---	---	---	0	1	Capinet ≥48K (or convertible ≤24K)
---	---	---	---	---	---	1	1	Capinet (or convertible ≥28K)

SW2: wiring controller communication address

wiring controller address	SW2-1	SW2-2	SW2-3	SW2-4
slave unit 1	0	0	0	0
slave unit 2	0	0	0	0
slave unit 3	0	0	0	0
slave unit 4	0	0	0	0
.....	.....	.....	.....	.....
slave unit 15	ON	ON	ON	ON

when the wiring controller is used to control many units , the wiring controller communication address of indoor unit need be setted

YHDJXH\*BAM--GX dip switch setting

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Description
1	0		—	—				09K indoorunit
0	1		—	—				12K indoorunit
0	0		—	—				18K indoorunit
1	0		—	—				24K indoorunit
—	—		0	0	—	—		Static pressure Opa
—	—		0	1	—	—		Static pressure10pa
—	—		1	0	—	—		Static pressure 20pa
—	—		1	1	—	—		Static pressure 30pa
—	—				1	—	—	Room card valid
—	—				0	—	—	Room card invalid
—	—					0	0	Slim duct (AD**SS1ERA)

1: ON 0: OFF

## 2. Sign definition:

Indoor				outdoor					
Tai	Tc1	Tc2	Tm	Tao	Toci	Tc	Te	Ts	Td
Ambient temp.	Outlet pipe temp.	Inlet pipe temp.	mid coil temp.	Ambient temp.	Thick pipe of heat exchanger	mid condenser	Defrost temp.	Compressor suction temp.	Compressor discharging temp.
Tcomp1,2		Tset							
Temp. compensation		Set temp.							

## 3. Dry operation

Tai<16°C, indoor unit stops running and sends stop-unit signal to outdoor.

Tai≤Tset, indoor motor runs at low speed and sends stop-unit signal to outdoor.

## 4. Fan operation

Indoor fan motor will run as the fan speed set on the remote controller or the wired controller and indoor unit will send the stop-unit signal to outdoor.

## 5. Auto operation

5.1 If the unit enters Auto mode for the first time, the system will adjust the operation mode according to the room temp. and the set temp.

When Tai≥Tset, entering auto cooling mode;

When Tai<Tset, entering auto heating mode.

5.2 Auto cooling mode is as the same as the cooling mode. After the thermostat is OFF for 15 minutes, if Tai+ 1+Tcomp2< Tset, the unit will enter auto heating mode, or the unit will still stay at auto cooling mode and stop when it reaches the set temperature; while the indoor motor will be at low speed.

5.3 Auto heating mode is as the same as the heating mode. After the thermostat is OFF for 15 minutes, if Tai≥Tset+1 +Tcomp1, the unit will enter auto cooling mode, or the unit will still stay at auto heating mode;

5.4 In this mode, the Sleep function is available, run as cooling sleep in cooling mode and as heating sleep in heating mode. Once sleep mode is set, the mode will not change after the unit stops for 15 minutes when it arrives Tset.

5.5 Mode conversion will be confirmed after compressor has stopped for 10 minutes.

## 6. Abnormal operation

6.1 When outdoor modes from the request of indoor unit conflict, the one entering firstly will take priority.

6.2 After indoor receives the ON command from wired controller, it will firstly confirm the outdoor current operation mode. If they are the same modes, indoor unit will run as the request of remote controller. If they are different modes, the system will forbid to operate, and indoor will keep the OFF mode and send the “standby” signal to wired controller until outdoor stops or outdoor mode the requested mode of wired controller are the same, the unit will run as the requested mode of wired controller.

6.3 After indoor receives the ON command from remote controller, it will firstly confirm the outdoor current operation mode. If they are the same mode, indoor unit will run as the request of remote controller. If they are different modes, the system will forbid to operate, and indoor will keep the OFF mode. After setting on remote controller, if the buzzer sounds two times, that shows abnormal operation. Indoor will run until the outdoor mode and the requested mode of remote controller are the same.

6.4 In AUTO mode, when the indoor unit occurs abnormal operation, the indoor unit will keep OFF state, and the buzzer will not sound until the outdoor mode and the requested mode of indoor unit are the same.

6.5 COOL (included AUTO COOL), DRY, FAN are not abnormal mode.

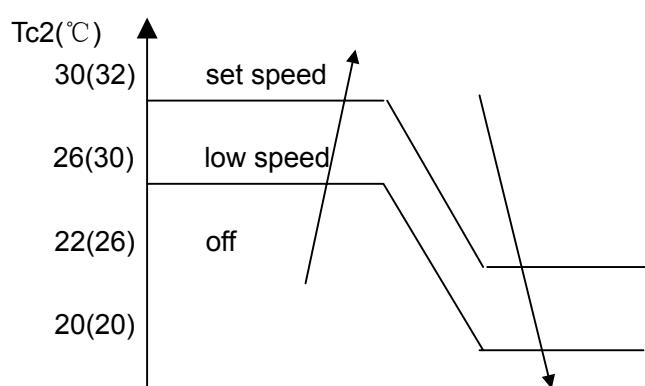
6.6 HEAT and FAN are not abnormal mode.

## 7. Control for discontinuous operation

After the unit starts up in cooling/heating mode, in 5 minutes, the compressor run/stop will not be controlled by the room temp., but after changing the set temp., if compressor stop condition can be met, the system will stop compressor immediately.

## 8. Anti-cold air control

In heating mode, after compressor startup, the system will control indoor fan motor according to indoor coil temperature. Detailed operation is as below:



Note:

- 1) The data in the parentheses is the control point when  $Tao > 10^{\circ}\text{C}$ ;
- 2) Indoor unit will send “pre-heat” signal to wired controller in anti-cold air period.

## 9. Fan motor control in defrosting

9.1 On receiving outdoor defrosting signal, indoor unit will stop after blowing remaining heat at slow speed for 20 seconds.

9.2 In defrosting period, indoor fan motor stops running.

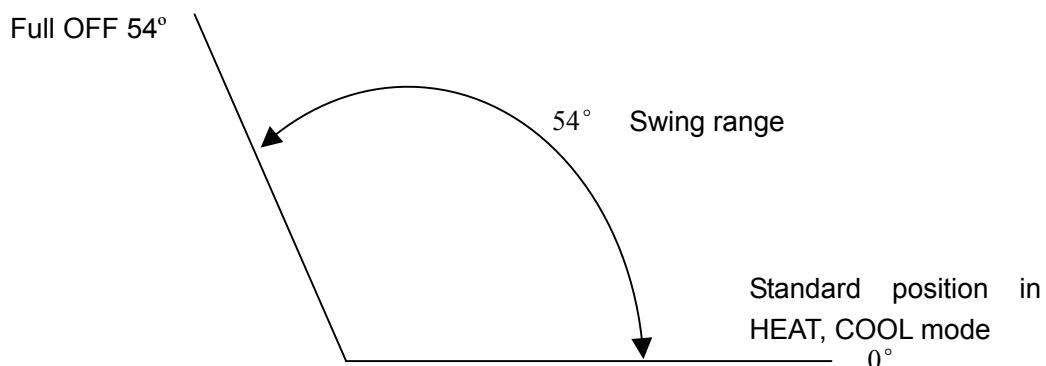
9.3 Defrosting is over, and indoor motor will run as anti-cold air state.

10. Blowing remaining heat operation

When the unit shuts off in heating mode or the thermostat is OFF, indoor motor will stop running after running at low speed for 30 seconds.

## 11. Swing motor control

Indoor unit will control the swing motor according to the swing signal from the wired controller.



## **12. Water pump control**

12.1 Water pump will be electrified when indoor unit enters non-heating mode until indoor unit stops. 5 minutes later after indoor unit stops, water pump will stop.

12.2 When indoor unit is in heating mode, water pump will not operate.

12.3 In OFF state and in any mode, once float switch signal is measured, indoor unit will send OFF signal to outdoor and send the failure code of drainage system to the wired controller, then the water pump will work until the float switch signal is cancelled. After water pump is forced to run for 5 minutes, indoor unit will be back to normal state.

## **13. Compulsory defrosting operation**

13.1 After indoor receives the compulsory defrosting signal, it will send continuously the signal to outdoor for 10 times, in this period, indoor unit will work normally and it will enter defrosting operation until it receives the enter-defrost signal from outdoor unit.

13.2 Wired control type: In heating mode, make a jumper for D2 to enter compulsory defrosting.

13.3 Remote control type: In heating mode, high speed, 30°C, press SLEEP button 6 times, and the buzzer will sound 3 times, then enter the manual defrosting.

## **14. Trial operation**

14.1 Enter condition

- A. Wired control type: In OFF state of COOL or HEAT mode, press ON/OFF button for over 5 seconds to enter the cooling or heating trial operation;
- B. Remote control type: In OFF state, keep pressing ON/OFF button until 5 seconds later, the buzzer sounds twice, then enter the cooling or heating trial operation;

14.2 Response in trial operation

- A. Cooling trial operation: indoor sends S-CODE=SD to outdoor, indoor: at high speed, set temp: 16°C;
- B. Heating trial operation: indoor sends S-CODE=SF to outdoor, indoor: at high speed, set temp: 30°C;
- C. In this period, anti-freeze and overheat functions are invalid.

14.3 Quit condition

- A. Receiving the signal of cancelling trial operation from wired controller or remote controller;
- B. After trial operation has run for 20 minutes, it will quit trial operation automatically and enter the normal mode with the set temp.: 24°C.

## **15. Timer operation**

15.1 Wired control type: wired controller will control the unit ON/OFF;

15.2 Remote control type: indoor unit will confirm the unit ON or OFF according to the current clock and the timer clock set by remote controller. When setting timer function, the timer LED will be ON.

## **16. SLEEP function**

16.1 Wired control type unit is without sleep function;

16.2 Remote control type unit consists of cooling sleep and heating sleep, after the sleep is set, the unit will change mode; the sleep will begin to count.

- A. In cooling/dry mode, after running for 1 hour, the set temp. will increase 1°C, another 1 hour later, the set temp. will increase 1°C again, then 6 hours (or set time-2) later, it will stop.
- B. In heating mode, after running for 1 hour, the set temp. will reduce 2°C, another 1 hour later, the set temp. will reduce 2°C again, then 3 hours later, the set temp. will increase 1°C, and another 3 hours(or set time-5), it will stop.
- C. When setting sleep function, indoor motor is forced at low speed.

## **17. Healthy negative ion function**

When receiving the healthy signal from the wired controller or remote controller, if fan motor is running, the negative ion will work;

If the fan motor stops, the negative ion generator will stop.

## **18. Auto-restart function**

18.1 Wired control type: jumper J07 at high level, auto-restart is available, if at low level, auto-restart is cancelled; when out of factory, the unit is with auto-restart function.

18.2 Remote control type: In 5 seconds, press SLEEP button(press SWING if without SLEEP button) 10 times continuously, the buzzer will sound 4 times and enter auto-restart function. In 5 seconds, press SLEEP 10 times continuously, the buzzer will sound twice and quit auto-restart function.

18.3 Memory information: ON/OFF state, mode, fan speed, set temp., health, swing position;

18.4 If the memory includes timer or sleep function, when being electrified again, timer and sleep will be cancelled;

18.5 If the memory includes auto mode, when the jumper shows cooling only type, auto mode will change to cooling mode.

## **19. Room card function**

The unit adopts room card function(220VAC input), which only make ON/OFF control. When it is connected, the unit is ON; when it is disconnected, the unit is OFF, and the other parameters will be as default or the data in memory.

19.1 When room card function is available

The central control, remote control/wired control and the room card are “AND” logical relationship. On the condition that the room card is connected, the unit can be controlled by remote controller or wired controller; indoor unit will run at the set state by the central controller, remote controller or wired controller; otherwise, if room card is not connected, the unit can not be controlled.

19.2 When room card function is not available

The unit will be controlled by the remote controller, the wired controller or the central controller.

## **20. Setting method of temperature compensation Tcomp**

A. Wired control type unit: this function is not available

B. Remote control type unit:

In cooling or heating mode, there is always with the temp. compensation.

In heating mode: In 24°C heating mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=the current set temp. - 24°C. For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 25°C, the temp. compensation is 1°C. The max. compensation temp. is 6°C (the set temp. is 30°C). If you want to cancel it, set the temp. as 24°C.

In cooling mode: In 24°C cooling mode, press SLEEP(or SWING) button 7 times continuously within 5 seconds, indoor buzzer sounds twice, that shows temp. compensation works. Switch on the unit in heating mode by the remote controller, press TEMP button to set the set temp., so temperature compensation=24°C-the current set temp.. For example, if the set temp. is 24°C, the temp. compensation is 0°C; if the set temp. is 23°C, the temp. compensation is -1°C. The max. compensation temp. is -8°C (the set temp. is 16°C). If you want to cancel it, set the temp. as 24°C.

So the temp. compensation range is +8°C~ -6°C.

## **21. Anti-freezed protection**

When compressor has run for over 5 minutes, to prevent indoor evaporator freezing (in cooling/dry mode), if indoor mid-coil temp. is below -1 degree for over 5 minutes, indoor EEV will close, and compressor will stop. When indoor mid-coil temp. is over about 10 degree, the unit will be normal.

## **22. Overload protection in heating mode**

It is valid only in heating mode, if indoor mid-coil temp. is over about 65 degree continuously for 10 seconds, indoor will stop; while when indoor mid-coil temp. is below 52 degree for 3 seconds, indoor will resume.

## 6. Diagnostic code and trouble shooting

### 6.1. Diagnostic code for outdoor unit

YHUJYH024BAR-A-X

Flash times of LED on mainboard	Trouble description	Analyze and diagnose
1	Eeprom failure	Outdoor main board eeprom fail
2	IPM failure	IPM failure
4	Communication error between main board and spdu module SPDU Communicition error	Communication fail over 4 min
5	High pressure protection	System high pressure over 4.15 Mpa
6	Module over-voltage protection(only for Spdu) Module lack-voltage protection(only for Spdu)	Send from Spdu module
8	Compressor discharging temperature protection	Compressor discharging temperature over 110 centigrade
9	Abnormal of DC motor	jam of DC motor or motor failure
10	Abnormal of pipe sensor	Piping sensor short-circuit or open-circuit
12	Abnormal of outdoor ambient sensor	Outdoor ambient sensor short-circuit or open-circuit
13	Abnormal of compressor discharge sensor	Compressor discharging sensor short-circuit or open-circuit
15	Communication error between indoor and outdoor unit	Communication fail over 4 min
16	Lack of refrigerant	check if there is leakage in the unit
17	4-way valve reverse failure	Alarm and stop if detect $Td-Tci \leq 15$ last for 1min after compressor has started for 10min in heating mode, confirm the failure if it appears 3 times in one hour.
18	Compressor jam (ony for spdu )	Inner compressor is abnormal jamed
19	Module EEV select circuit error	Module EEV select wrong circuit
25	Compressor U-phase over-current	The current of compressor U-phase is too high
25	Compressor V-phase over-current	The current of compressor V-phase is too high
25	Compressor W-phase over-current	The current of compressor W-phase is too high
45	Low pressure protection	System over pressure under 0.05Mpa

YHUYJH024BAR-A-X YHUYJH028BAR-A-X YHUYJH036BAR-A-X YHUYJH048BAR-A-X  
 YHUYJH048BAS-A-X YHUYJH060BAS-A-X

PRODUCT DIAGNOSIS PROCEDURE			
Malfunction Code	Trouble Description	Analyze and diagnose	Remark
1	EEPROM faulty		Non-resumable
2	Over current protection in course of compressor frequency going down detected by software	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable resumable
3	protection of over current in course of compressor fixed speed operation	Module abnormal, if it occurs 3 times in 1 hour, confirm the failure	Non-resumable
4	Communication abnormal between connecting board and module	It can not get the feedback from module after communicating for 4 minutes	resumable
5	Compressor overcurrent	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
7	Compressor blocked or abnormal operation	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
8	Protection of discharging temp. too high	After compressor starts up, if TD is over 115°, 10 seconds later compressor stops, if it occurs 3 times in 1 hour, confirm the failure	Non-resumable
9	DC fan motor faulty	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
10	Outdoor defrosting temp. sensor abnormal	Sensor is detected below 20 or over 1000 for 60 seconds, but in cooling mode, this sensor failure will not be dealt with, and in defrosting or within 6 minutes after defrosting, it will not alarm.	resumable
11	Suction temp. sensor abnormal	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	resumable
12	Ambient temp. sensor abnormal	Sensor is detected below 20 or over 1000 for 60 seconds, but in frosting or within 6 minutes after defrosting, it will not alarm	resumable
13	Discharging temp. sensor abnormal	After compressor running for 3 minutes, Sensor is detected below 20 or over 1000 for 60 seconds	resumable
15	communication between indoor and outdoor abnormal	Indoor unit can not be inspected for 4 minutes continuously	resumable
16	Lack of refrigerant or discharging pipe blocked	If it occurs 3 times in 1 hour, confirm the failure.	Non-resumable
17	4-way valve converse abnormal	If it occurs 3 times in 1 hour, confirm the failure.	Non-resumable
18	Over current in course of compressor frequency going down	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
19	Over current protection in course of compressor fixed speed operation detected by software	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
23	Module temp. too high or module temp. sensor abnormal	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
24	Over current protection in course of compressor frequency going up / down detected by software	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
27	Without connection to compressor	If it occurs 3 times in 1 hour, confirm the failure, the former twice will not alarm	Non-resumable
28	High voltage protection for module	From module board	resumable
29	Low voltage protection for module	From module board	resumable
38	Communication abnormal among modules	It can not detect the input signal for 2 minutes	Non-resumable
39	Mid-condenser temp. sensor abnormal	Sensor is detected below 20 or over 1000 for 60 seconds, but in defrosting or within 6 minutes after defrosting, it will not alarm	resumable
43	Low pressure switch abnormal	After compressor running for 3 minutes, if switch is detected unconnected for 30 seconds, it alarms, if it occurs 3 times in 1 hour, confirm this failure, if it occurs 3 times in 1 hour, confirm the failure, but in defrosting or within 6 minutes after defrosting, it will not alarm	Non-resumable
44	High pressure switch abnormal	After compressor running for 3 minutes, if switch is detected unconnected for 30 seconds, it alarms, if it occurs 3 times in 1 hour, confirm this failure, or if Tcm is over 68 degree for 10 seconds for 3 times	Non-resumable

Note: The flash times of outdoor mainboard(ECU) LED1 indicates the malfunction code. for example, LED1 flash 3 times, the malfunction code is 3. The flash times or malfunction code of indoor unit can also indicate the malfunction code too. the method to confirm please refer to indoor unit manual.

0150509517

## 6.1.2. Diagnostic code for indoor unit

Flash times of Timing LED(or indoor PCB LED4)	Flash times of Running LED(or indoor PCB LED3)	Failure code(from wired controller)	Failure code(from panel controller )	trouble shooting	Possible reasons
0	1	01	E1	Temperature sensor Ta faulty	Sensor disconnected, or broken, or at wrong position, or short circuit
0	2	02	E2	Temperature sensor Te faulty	Sensor disconnected, or broken, or at wrong position, or short circuit
0	4	04	F8	EEPROM WRONG	Faulty indoor unit PCB
0	7	07	E9	Abnormal communication between indoor and outdoor units	Wrong connection, or the wires be disconnected, or wrong address setting of indoor unit, or faulty power supply or faulty PCB
0	8	NO EEROR CODE DISPLAY	E8	Abnormal communication between indoor wired controller and indoor unit PCB	Abnormal communication between indoor wired controller and indoor unit PCB
0	12	0C	E0	Drainage system abnormal	Pump motor disconnected, or at wrong position, or the float switch broken down, or the float switch disconnected, or at wrong position.
0	13	0D	EF	Zero cross signal wrong	Zero cross signal detected wrong
0	14	0E	/	Indoor unit DC fan motor abnormal	DC fan motor disconnected, or DC fan motor broken, or circuit broken
0	16	10	F3	Indoor mode abnormal	Different from outdoor unit mode
2	1	15	/	Outdoor unit abnormal	Refer to the outdoor unit trouble shooting list
2	2	16	/	Outdoor unit abnormal	
2	4	18	/	Outdoor unit abnormal	
2	5	19	/	Outdoor unit abnormal	
2	7	1B	/	Outdoor unit abnormal	
2	8	1C	/	Outdoor unit abnormal	
2	9	1D	/	Outdoor unit abnormal	
3	0	1E	/	Outdoor unit abnormal	
3	1	1F	/	Outdoor unit abnormal	
3	2	20	/	Outdoor unit abnormal	
3	3	21	/	Outdoor unit abnormal	
3	5	23	/	Outdoor unit abnormal	
3	6	24	/	Outdoor unit abnormal	
3	7	25	/	Outdoor unit abnormal	
3	8	26	/	Outdoor unit abnormal	
3	9	27	/	Outdoor unit abnormal	
4	3	2B	/	Outdoor unit abnormal	
4	4	2C	/	Outdoor unit abnormal	
4	7	2F	/	Outdoor unit abnormal	
4	8	30	/	Outdoor unit abnormal	
4	9	31	/	Outdoor unit abnormal	
5	8	3A	/	Outdoor unit abnormal	
5	9	3B	/	Outdoor unit abnormal	
6	3	3F	/	Outdoor unit abnormal	
6	4	40	/	Outdoor unit abnormal	

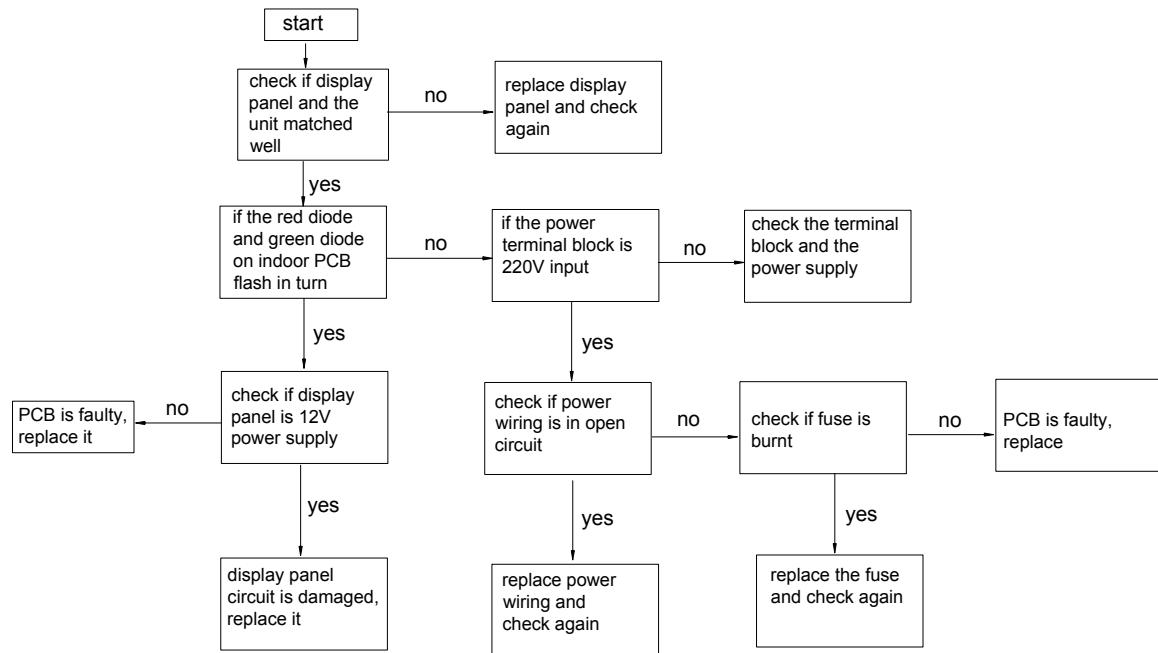
1. For the indoor failure, only running LED ON remote receiver will indicate.

2. For the outdoor failure, timer LED and running LED will indicate. timer LED of remote receiver stands for ten's place, and running LED stands for one's place. timer LED will flash firstly, 2 seconds later, running LED will flash too. After that, 4 seconds later, they will flash in turns again. Flash times equals to the failure code of outdoor plus 20. For example, failure code of outdoor is 2, the indoor unit should display 22. As a result, timer LED flashes twice firstly, then running LED flashes twice.

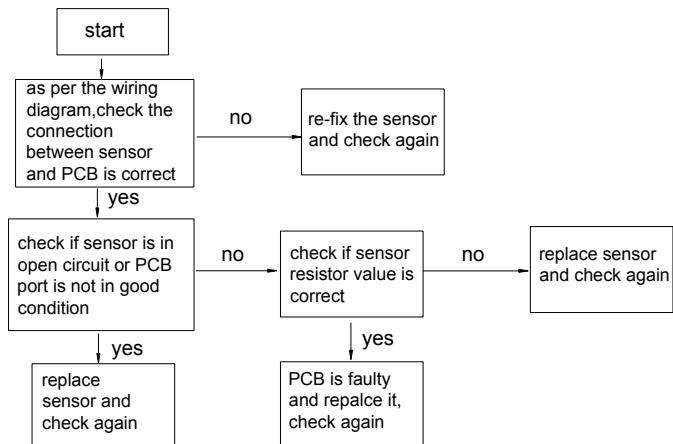
3. To get much more details of outdoor unit failure, Please refer to the the outdoor unit trouble shooting list

## 6.2. Trouble Shooting:

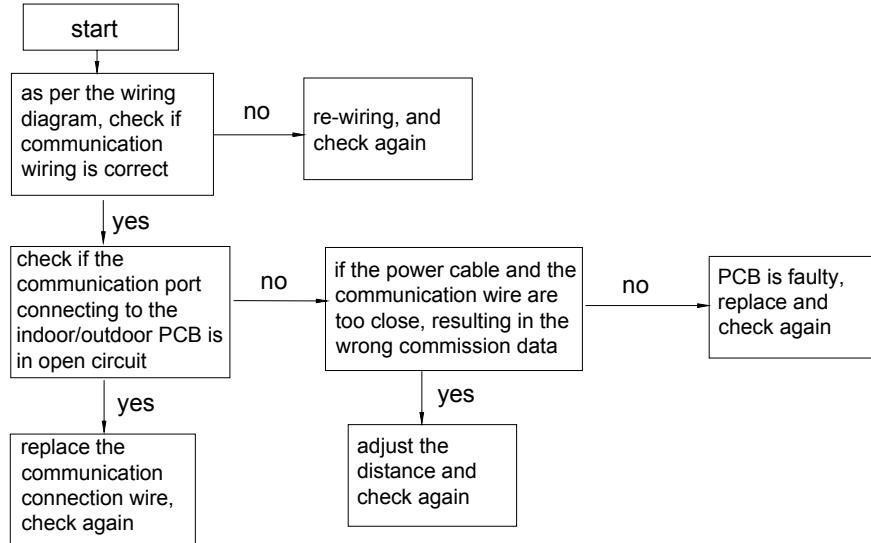
Trouble 1: No display on the operation panel



Trouble 2: Sensor failure



Trouble 3: Communication failure between indoor and outdoor



Trouble 4: Indoor PCB EEPROM data is wrong

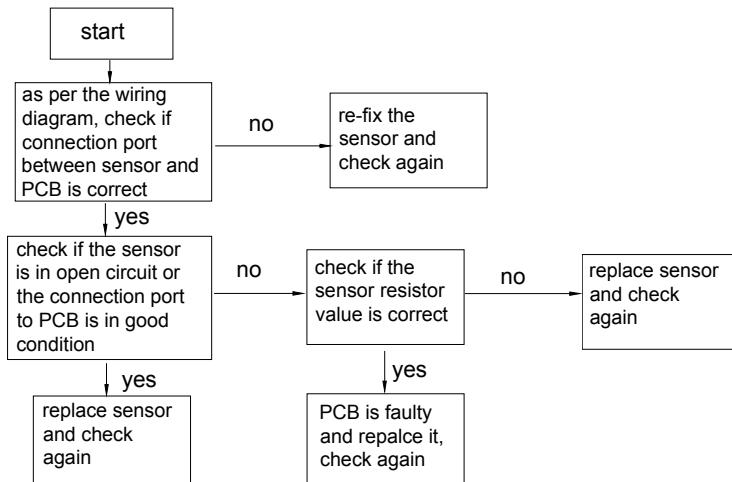
- 1.If the failure occurs when being electrified for the first time, that shows EEPROM (8-bit pin) not fixed firmly or damaged.
- 2.If the failure occurs when running, that shows EEPROM is faulty and need to be replaced.

Trouble 5: Indoor repeated unit number

Trouble 5: Outdoor unit failure

Check the failure code on outdoor indicator board (5-lamp)

Trouble 6: Outdoor unit alarms sensor failure



Trouble 7: AC current over current protection or current transducer damaged, or compressor blocked rotor, compressor great vibration, compressor abnormal startup, state detecting curcuit abnormal or compressor damaged.

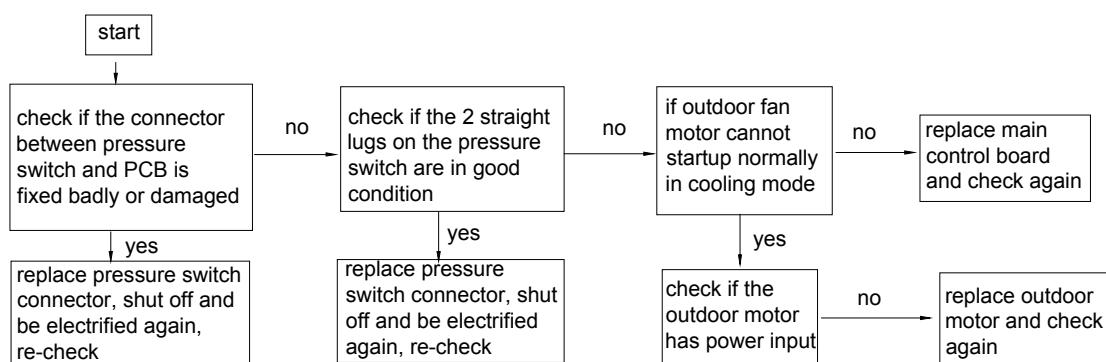
The former twice failure can be resumed automatically, if outdoor board occurs this failure always, and can not be resumed for a long time, that shows:

1. Power module (SPDU) damaged, please replace the power module, then re-wiring as per the wiring diagram (70% possibility)
2. Short circuit in power board results in the power module damaged (15% possibility)
3. Damaged compressor results in this failure (10% possibility)
4. Main control board is faulty, replace it (5% possibility)

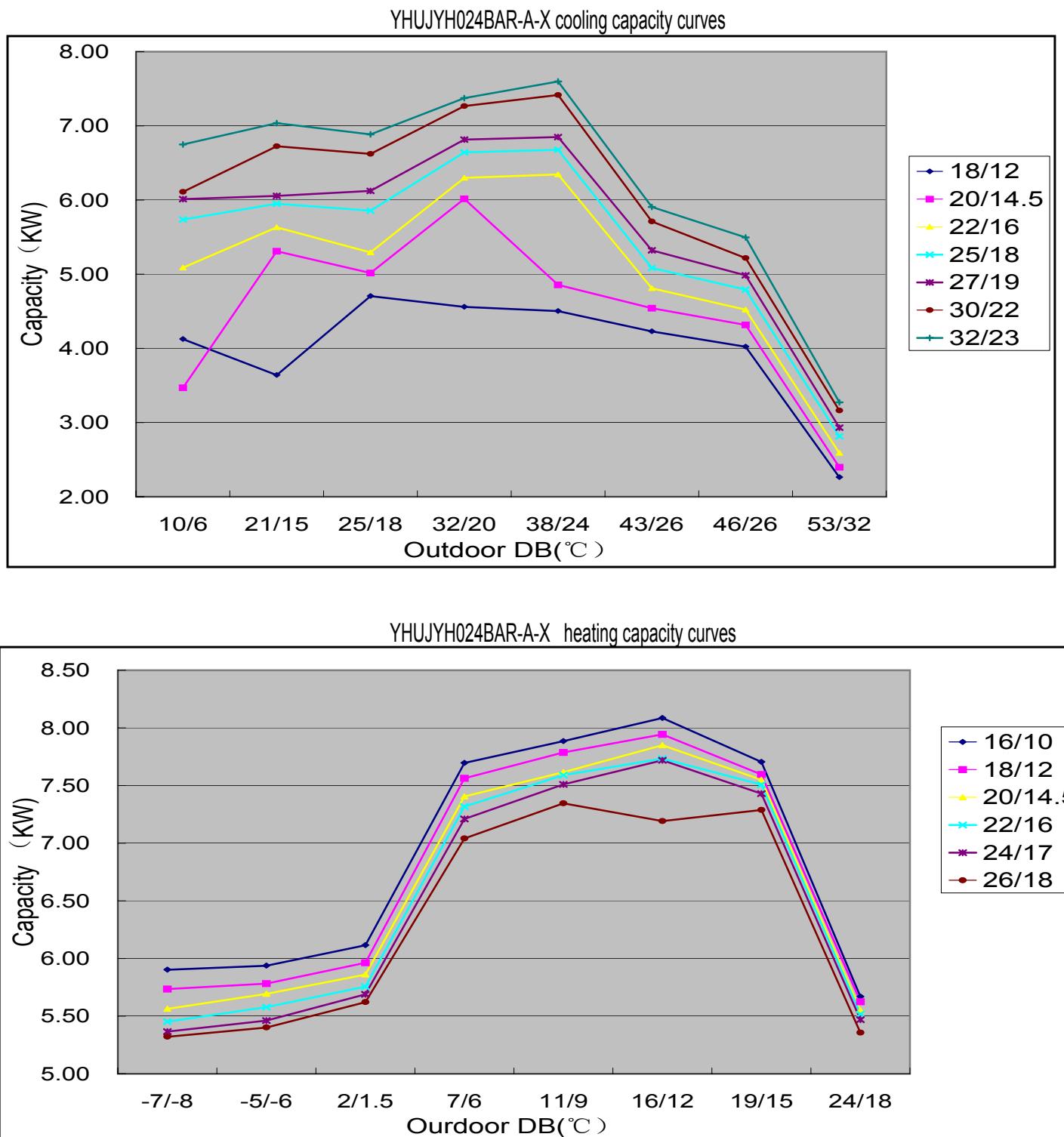
Trouble 10: High pressure failure

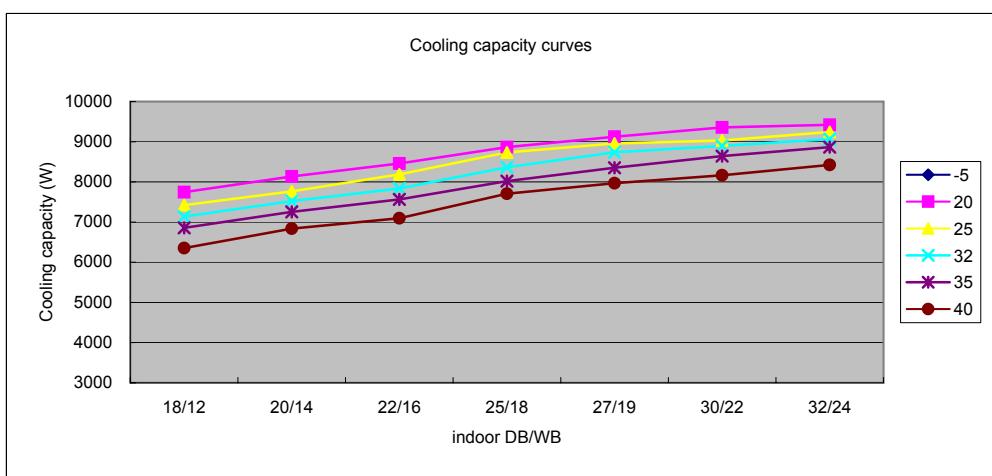
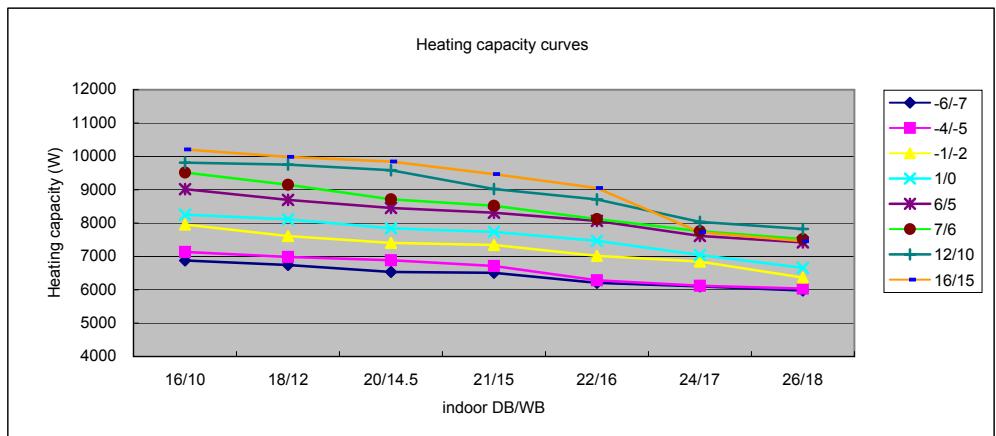
Reasons:

1. Over high system pressure results that the unit stop, and the compressor protection will work. The failure can be resumed.
2. Pressure switch wire is not fixed well or in open circuit.

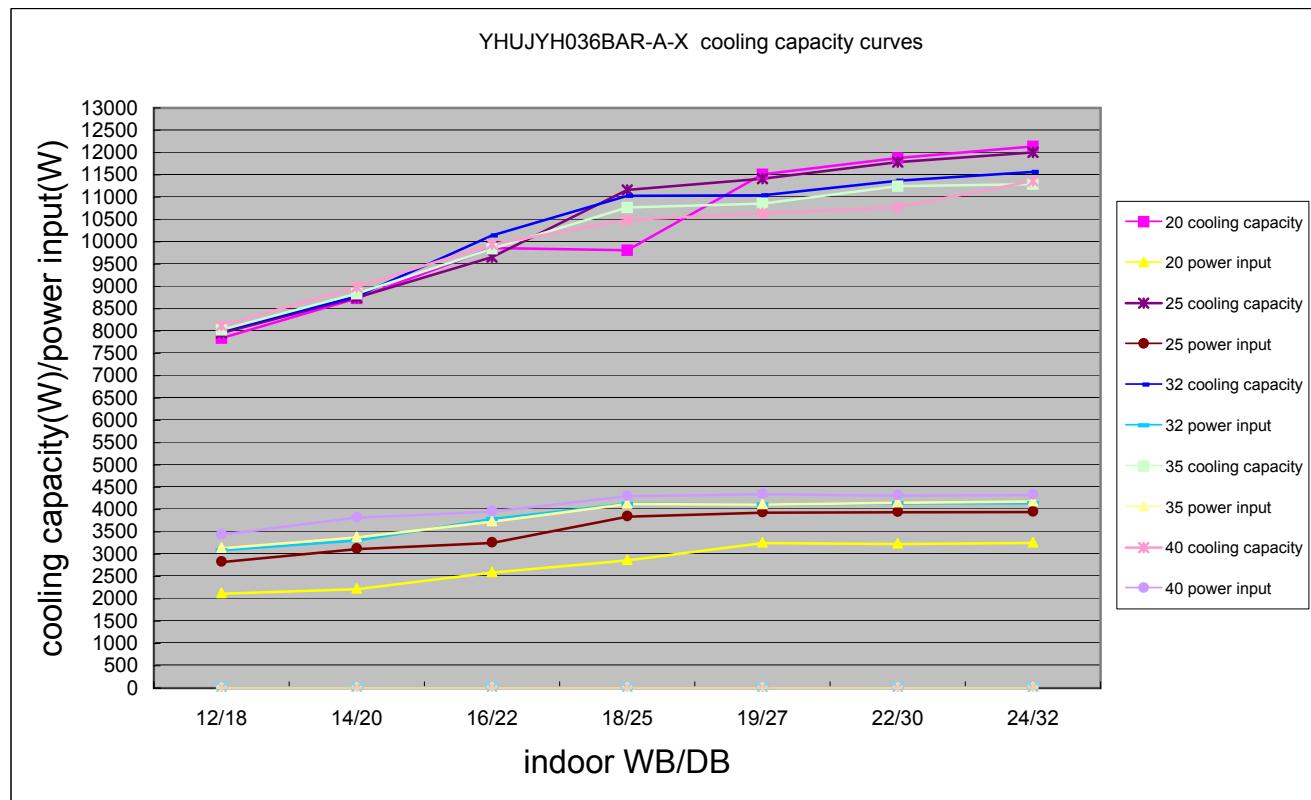
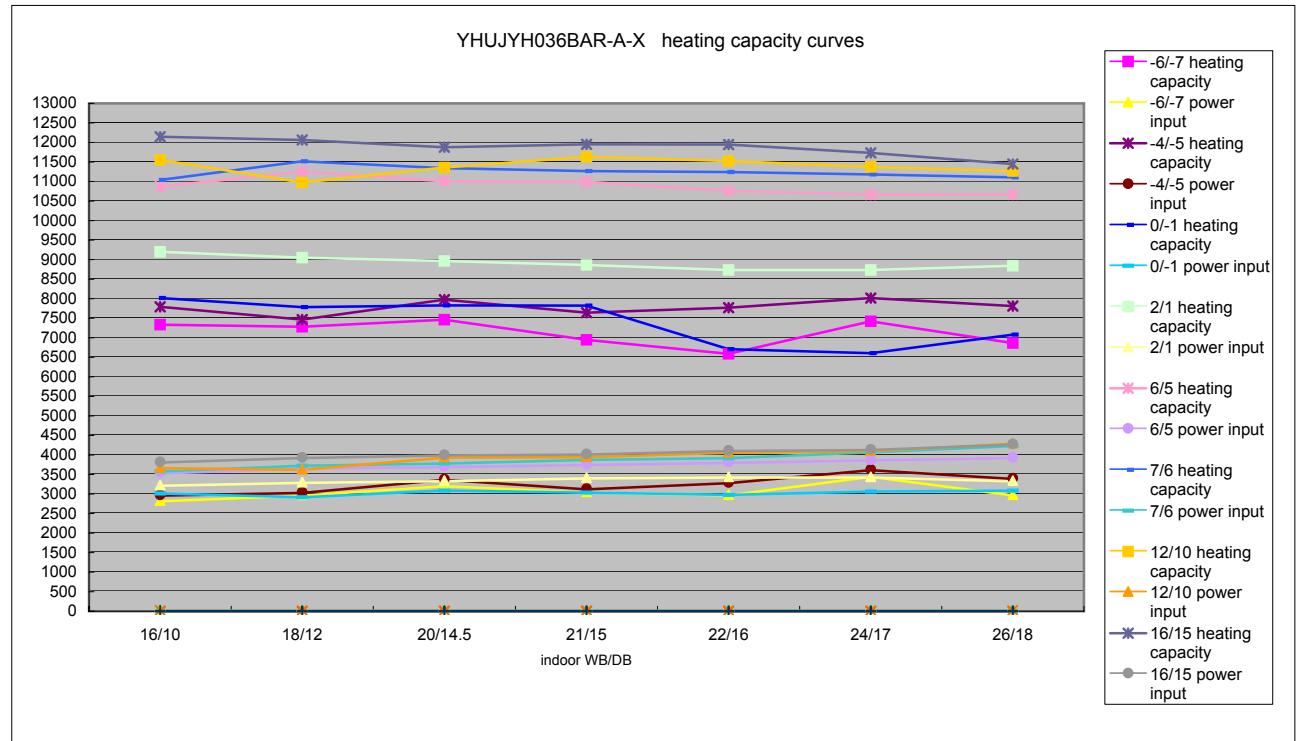


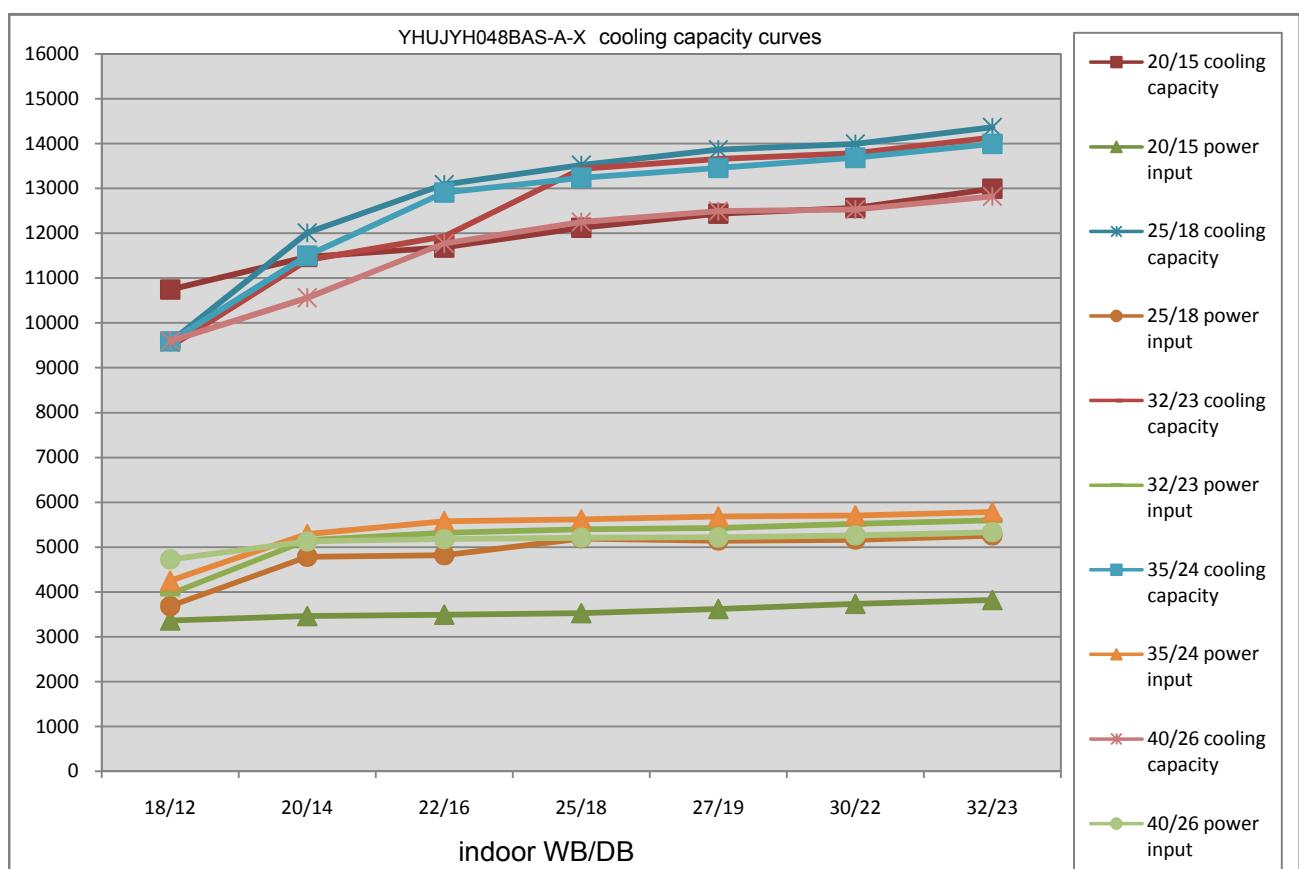
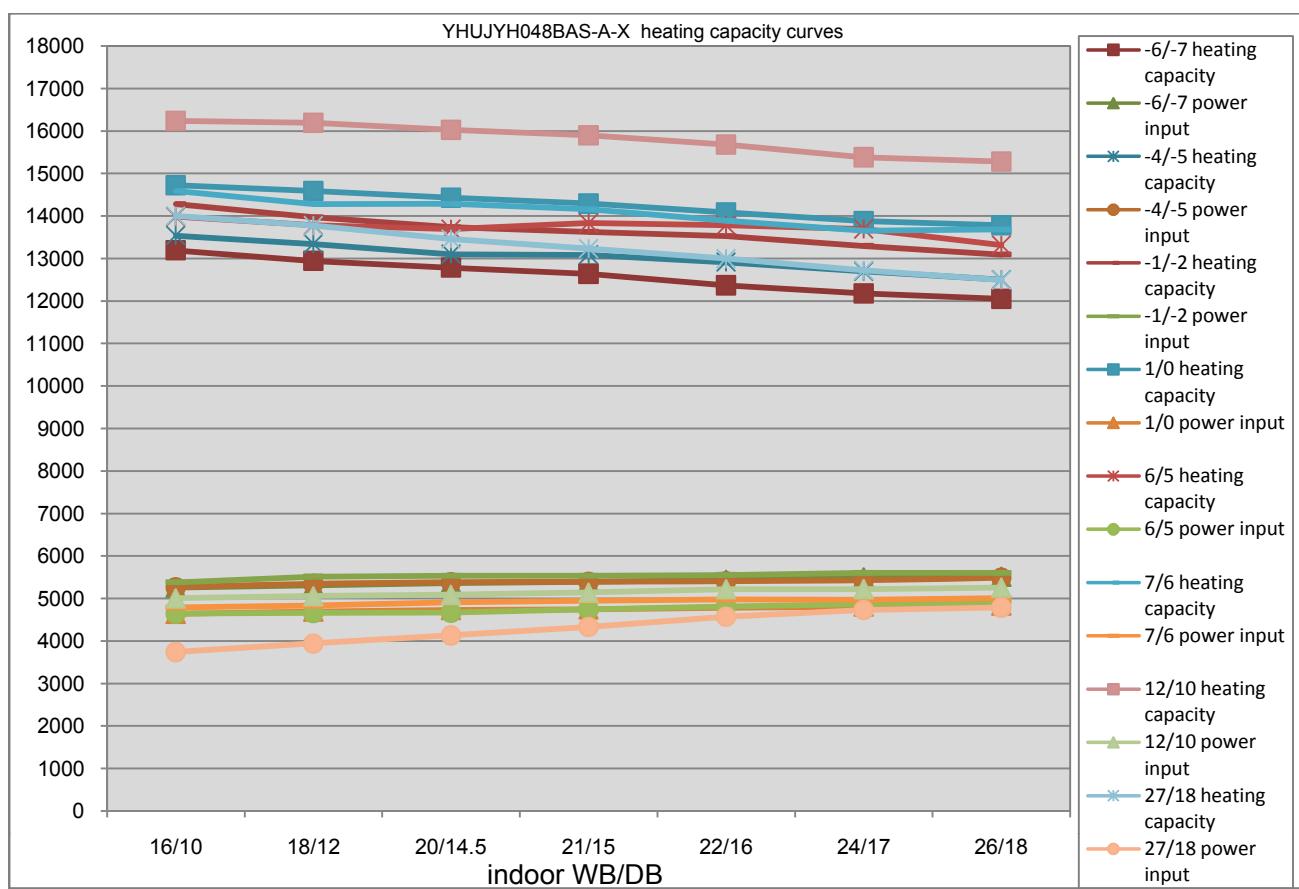
## 7. Outdoor performance curves

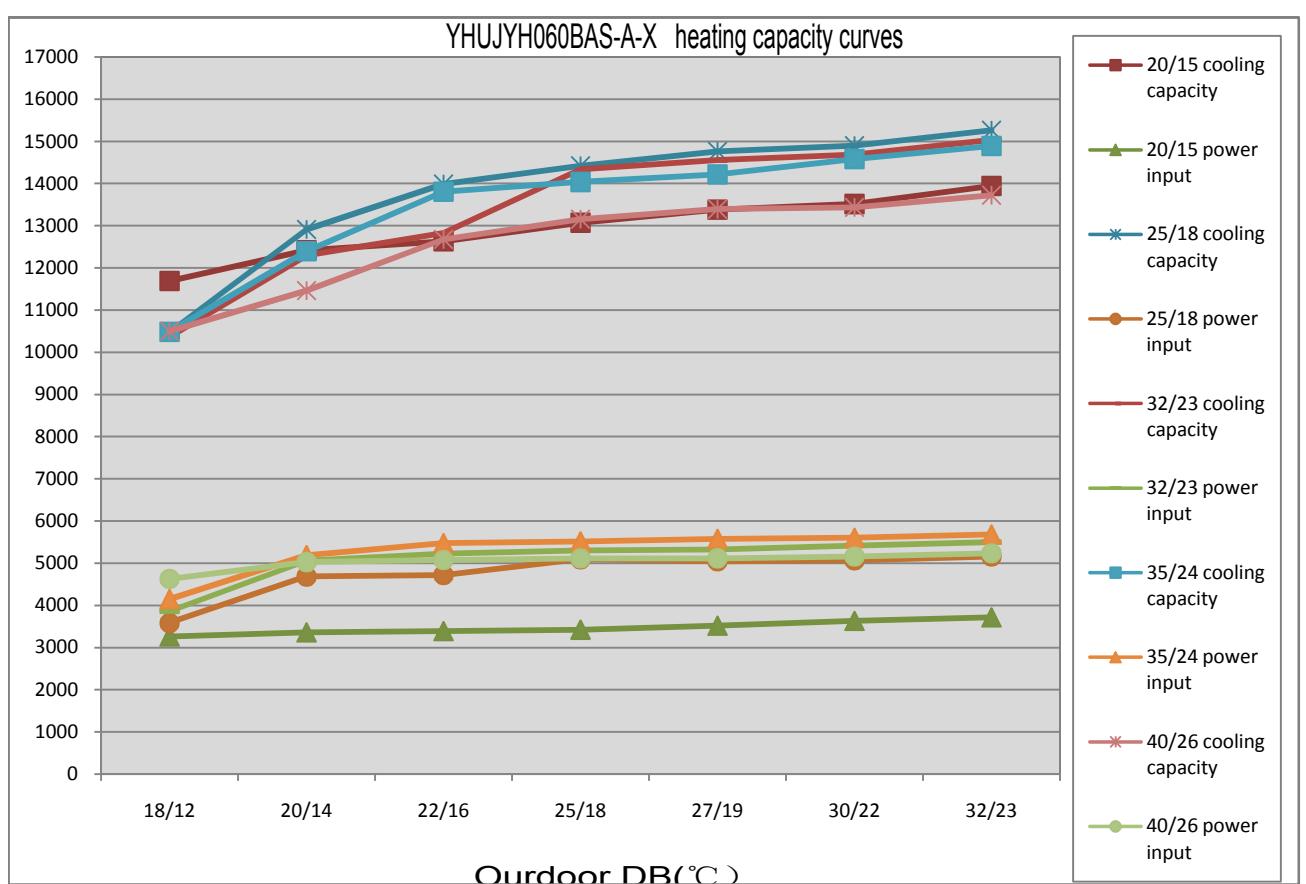
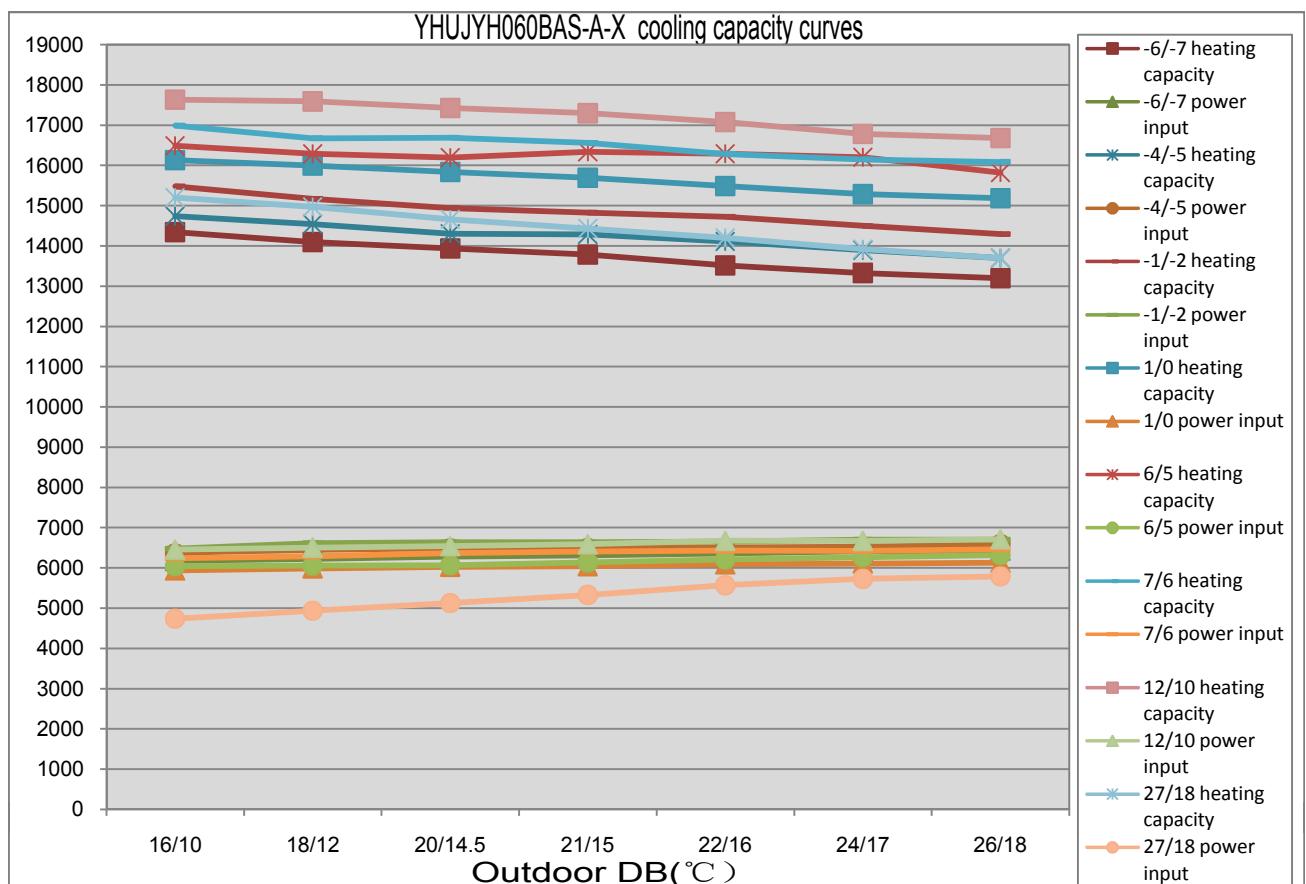




## YHUYJH036BAR-A-X







## 8. Indoor air velocity and temperature distribution curves

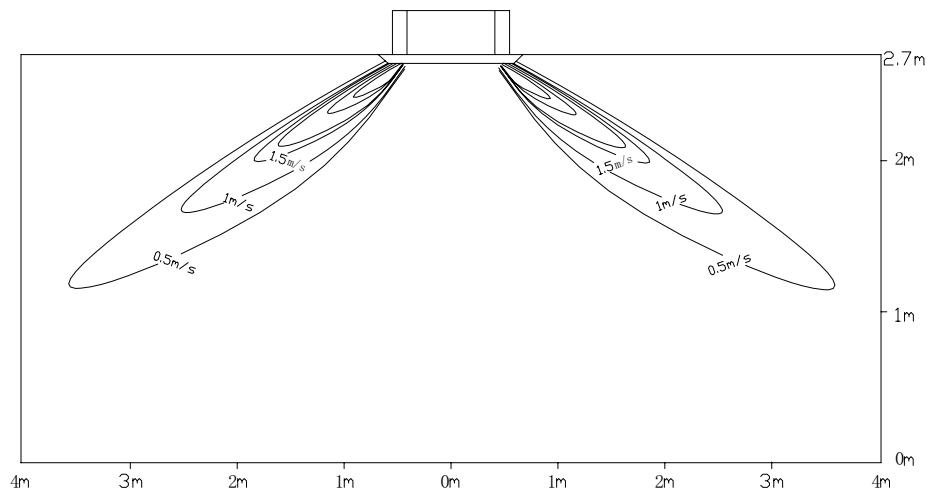
### 8.1 AB

#### a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

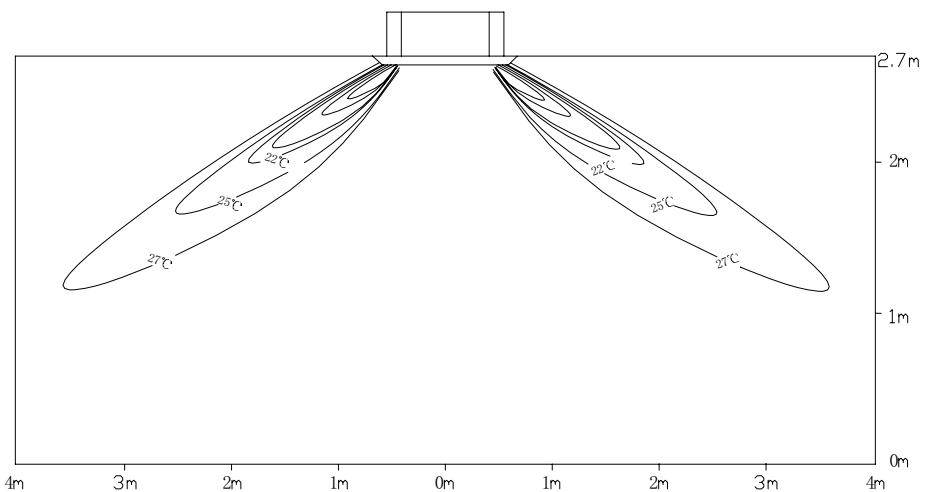


#### b. Cooling / Temperature Distribution

Cooling

Blowy angle:25

Temperature Distribution



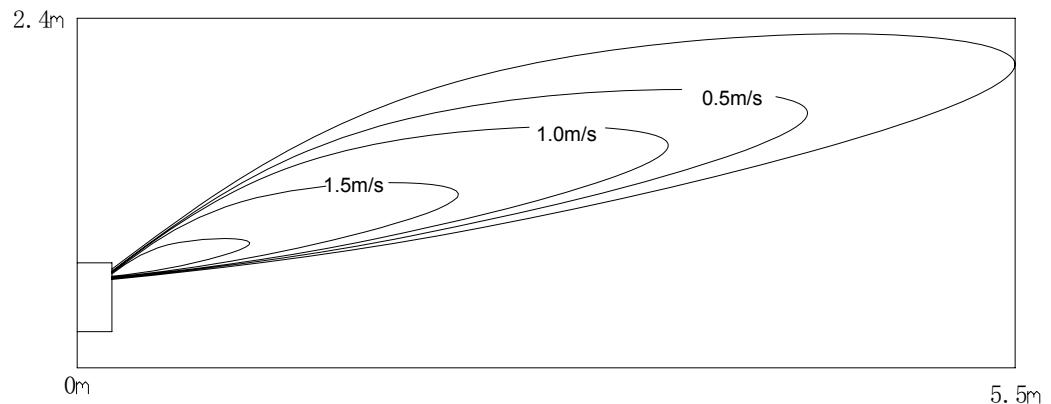
## 8.2 For AC

### a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

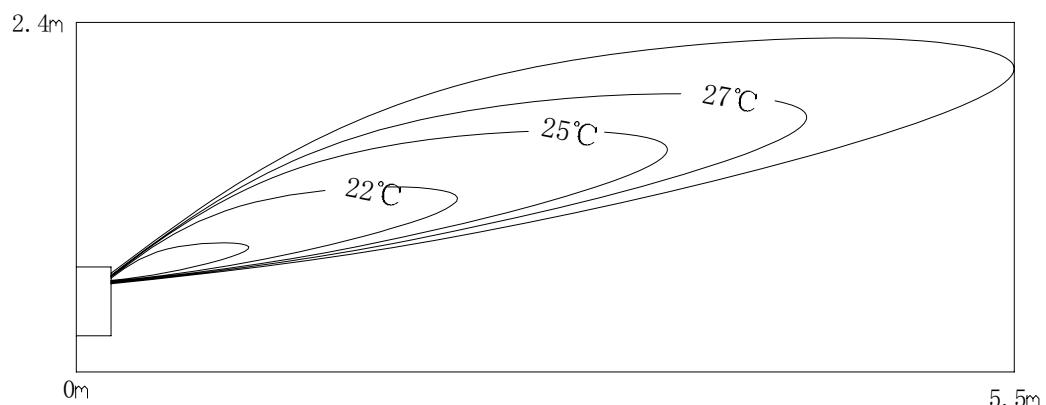


### b. Cooling / Temperature Distribution

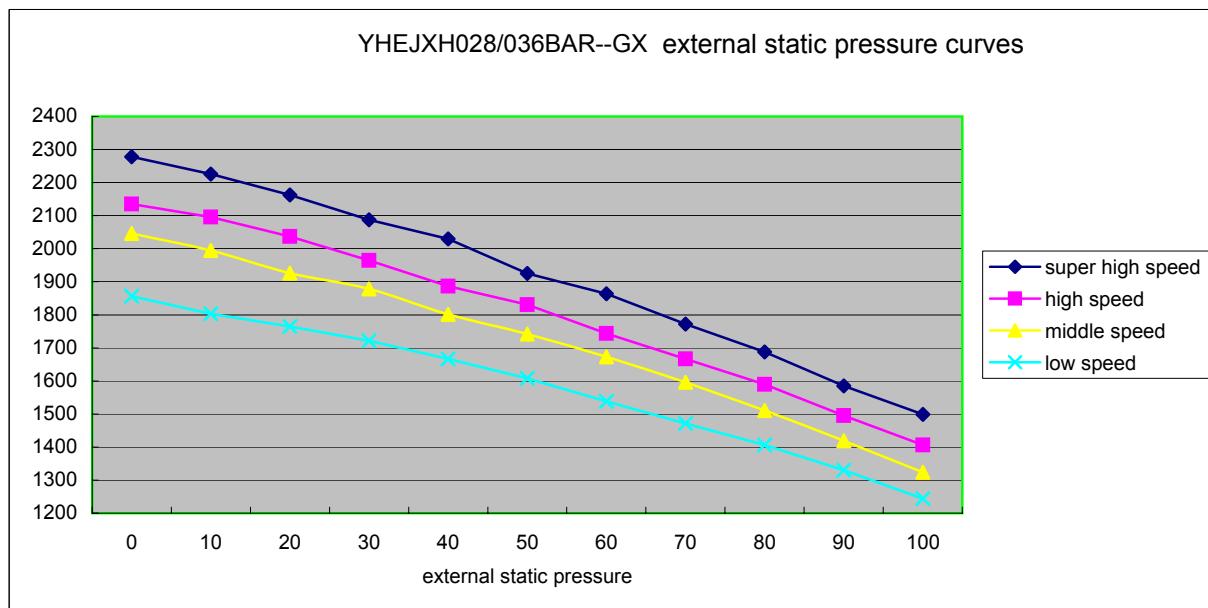
Cooling

Blowy angle:25

Temperature Distribution

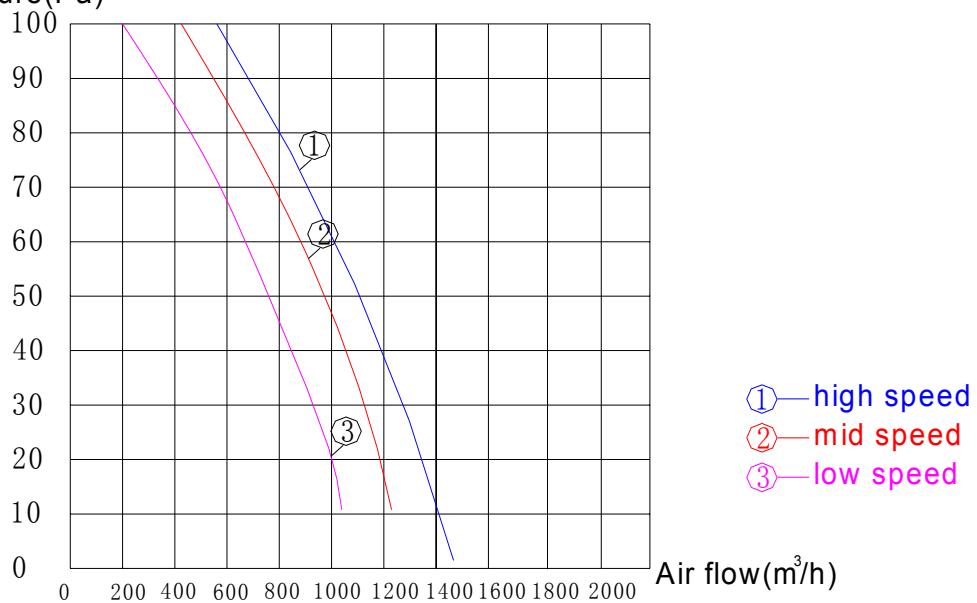


## 9. Air flow and static pressure chart



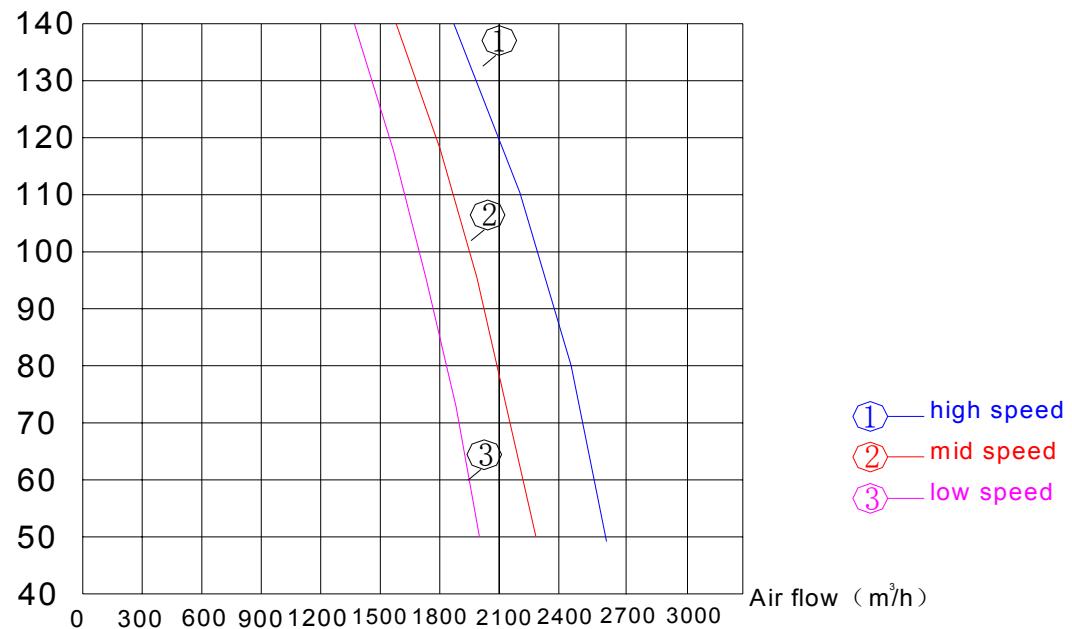
External static  
pressure(Pa)

YHDJXH024BAR--GX external static pressure curves



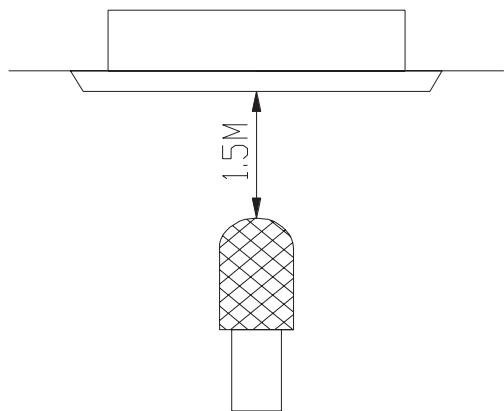
External static pressure (Pa)

YHGJXH048BAR--GX external static pressure curves



## 10. Noise level

### a. Casset type indoor unit



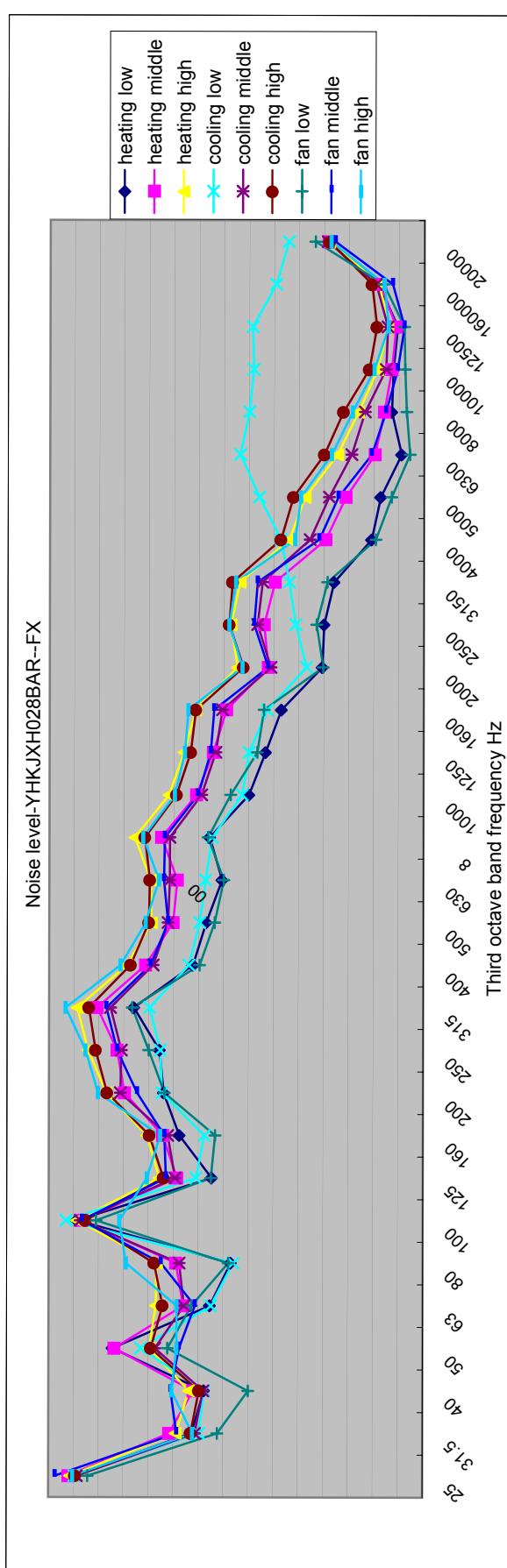
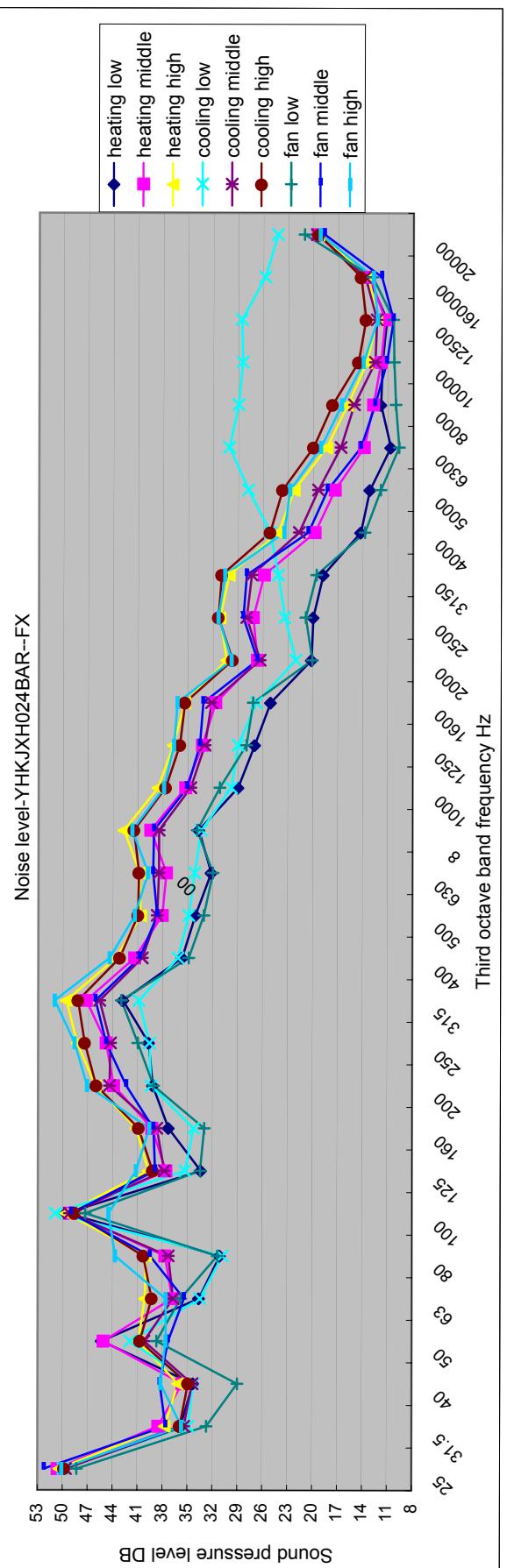
(1) Testing illustrate:

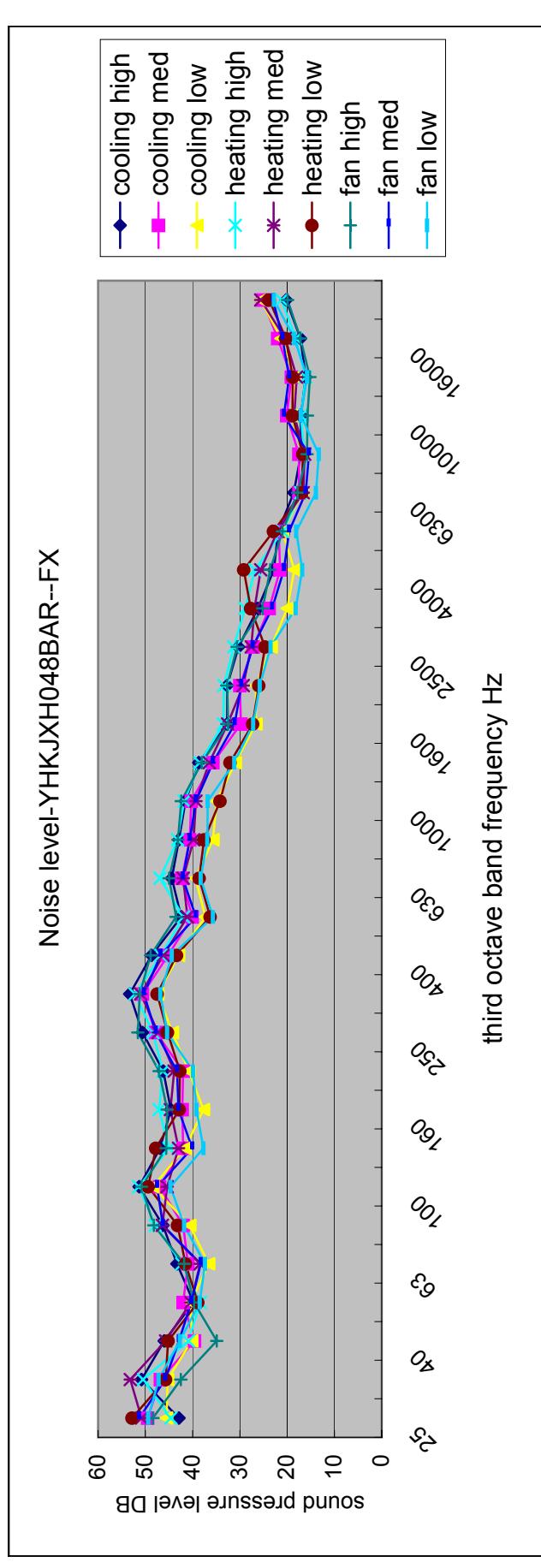
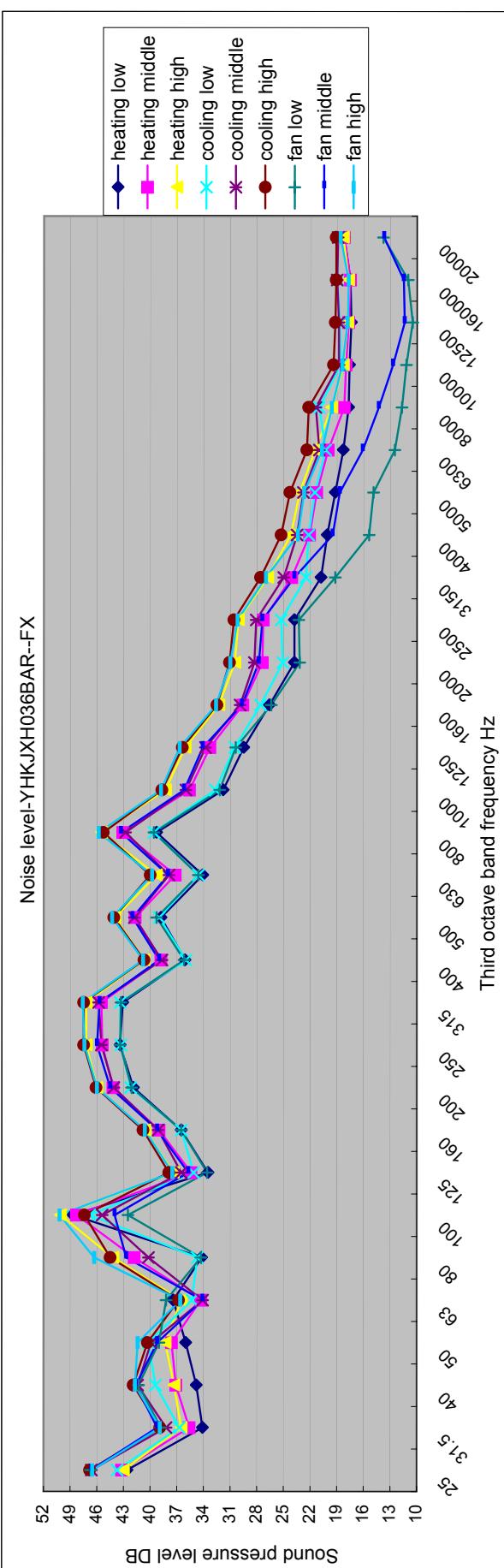
(2) Testing condition:

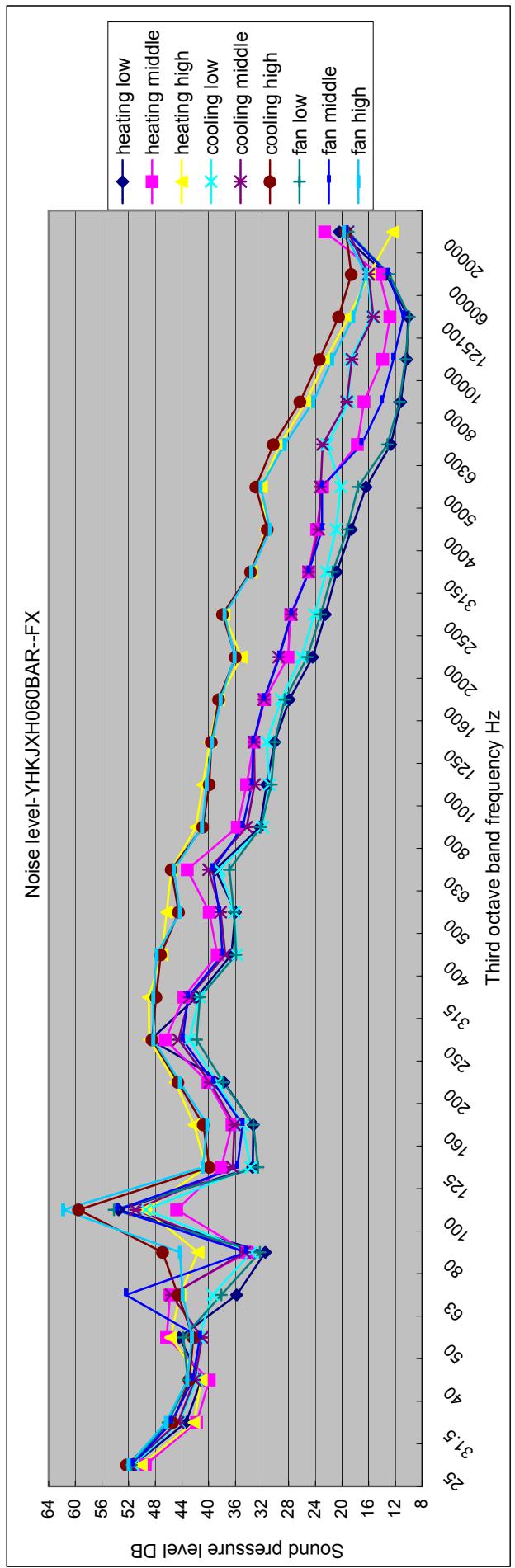
- a. Unit running in the nominal condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

### (3) Test method

According to the testing illustrator, the microphones wearing sponge style cover should be placed in the right position

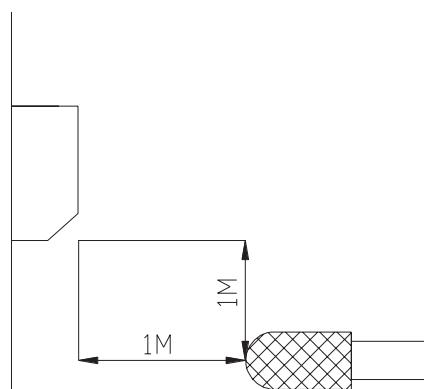






b. Convertible type indoor unit

(1) Testing illustrate:

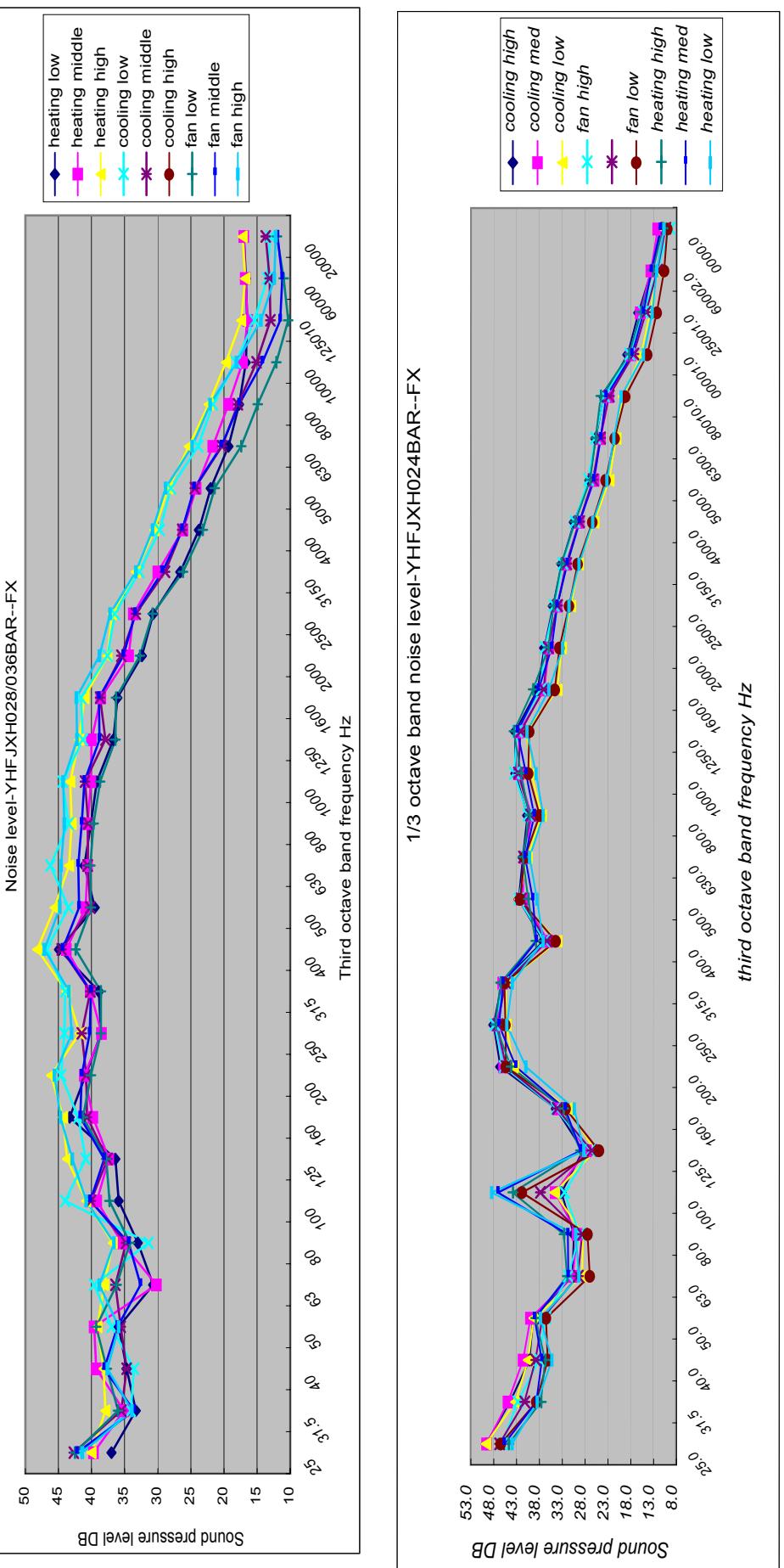


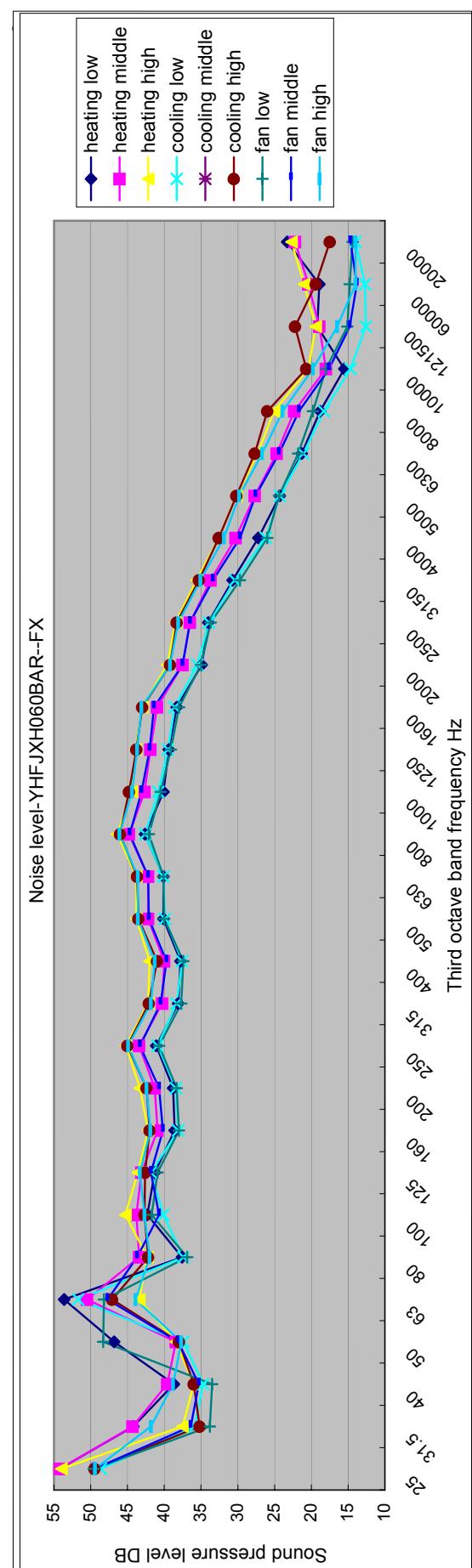
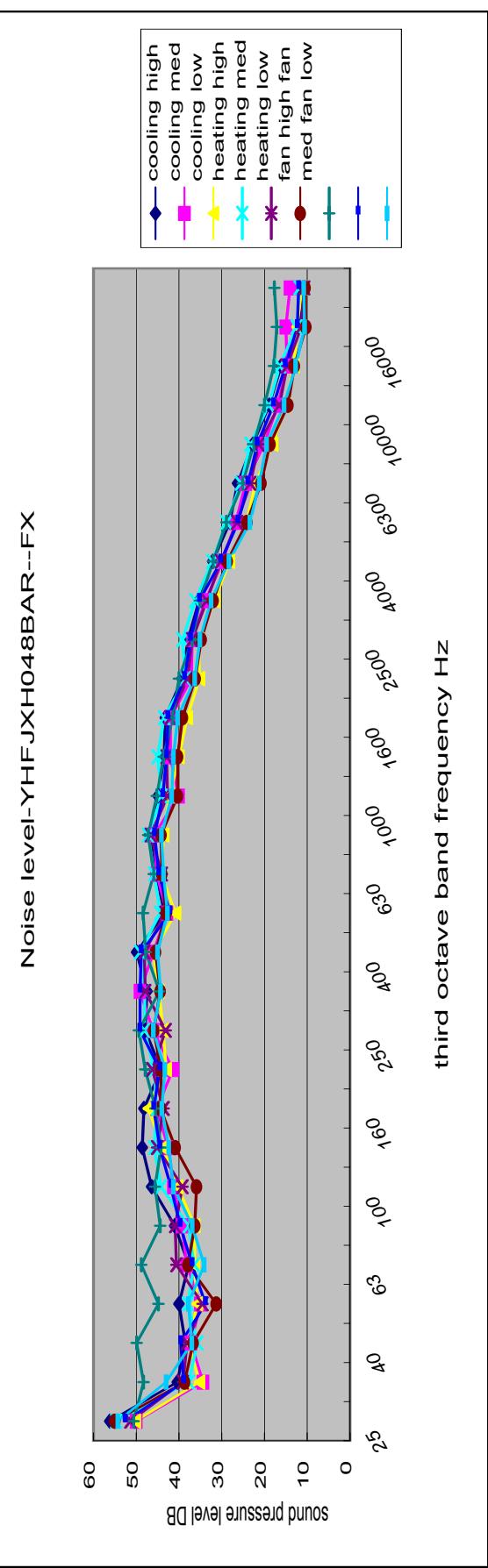
(2) Testing condition:

- a. Unit running in the nominal condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

(3) Test method

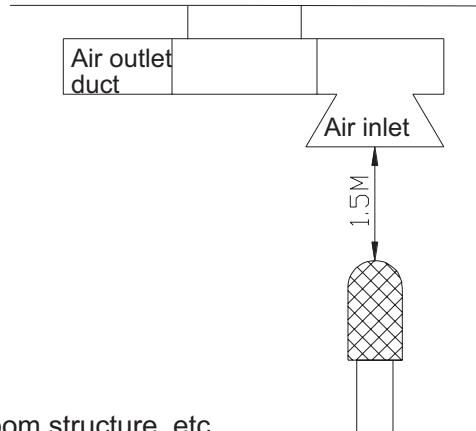
According to the testing illustrator, the microphones wearing sponge style cover should be placed in the right position





c. Duct type indoor unit

(1) Testing illustrate:

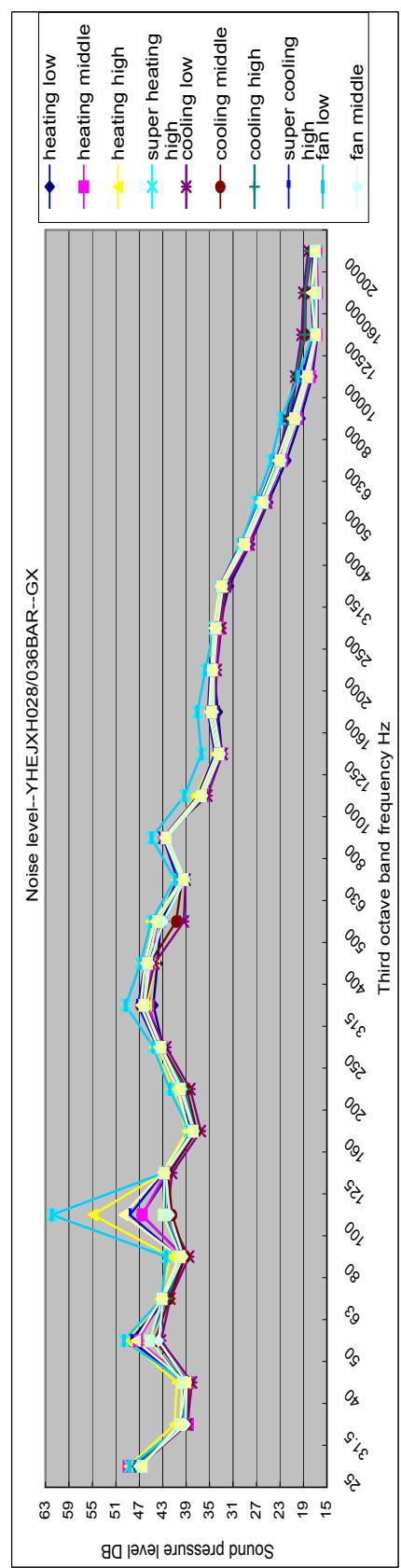
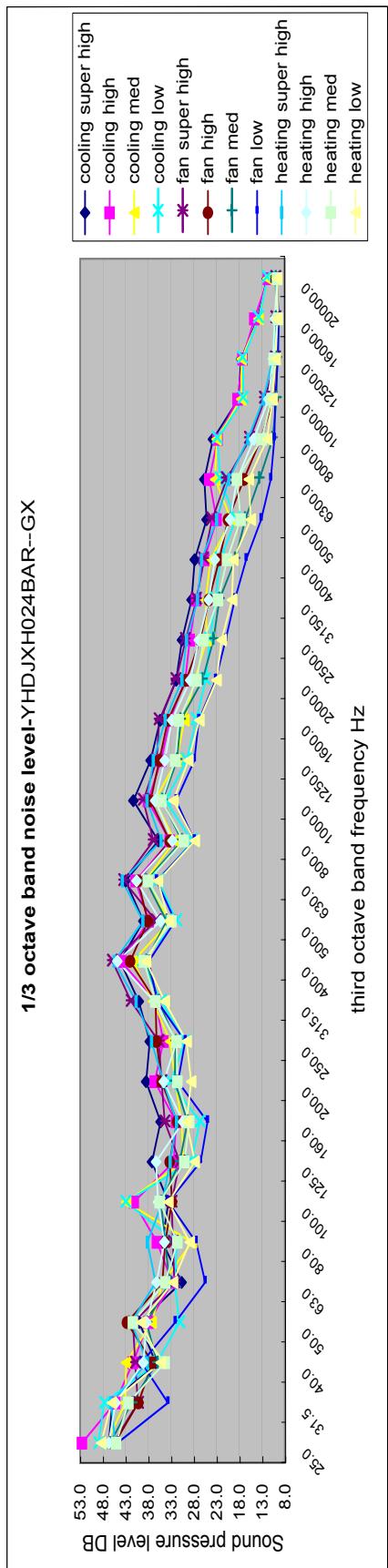


(2) Testing condition:

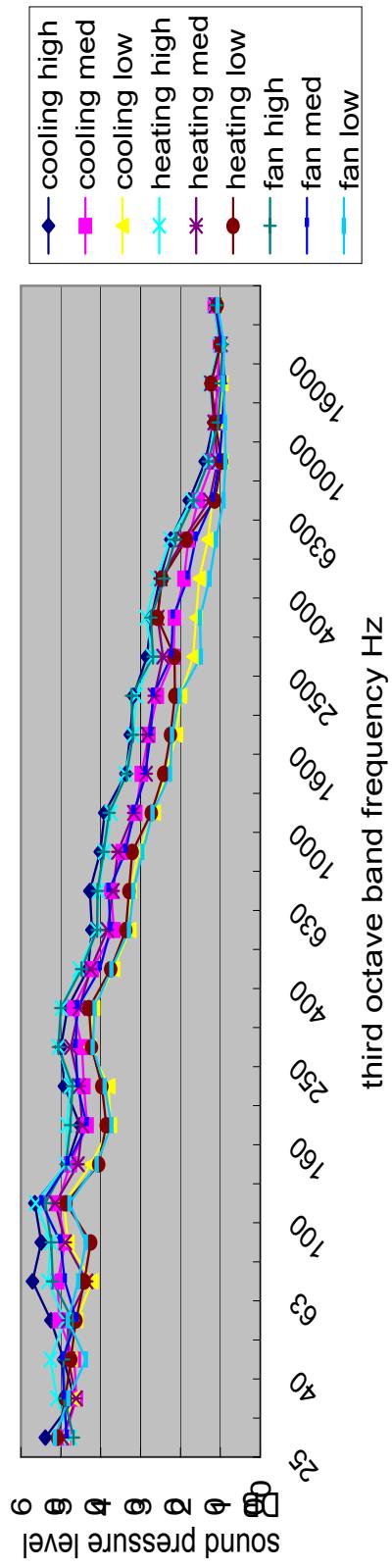
- a. Unit running in the nominal condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

(3) Test method

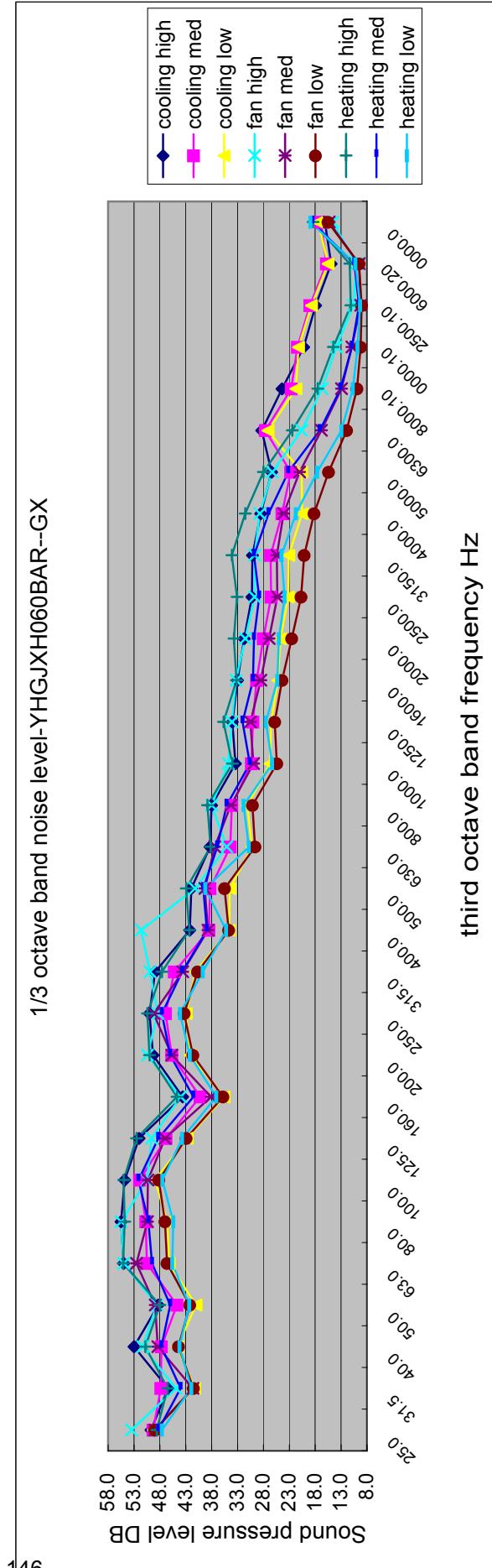
According to the testing illustrator, the microphones wearing sponge style cover should be placed in the right position



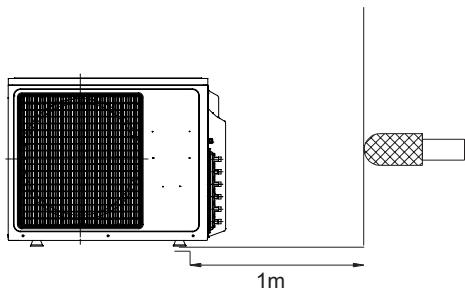
Noise level-YHGJXH048BAR--GX



1/3 octave band noise level-YHGJXH060BAR--GX



(1) Testing illustration:

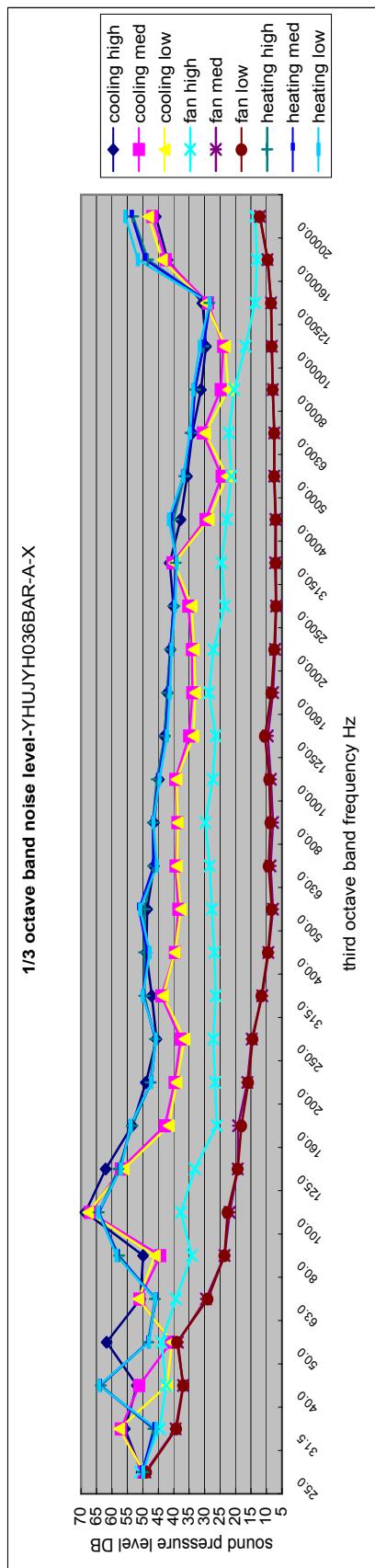
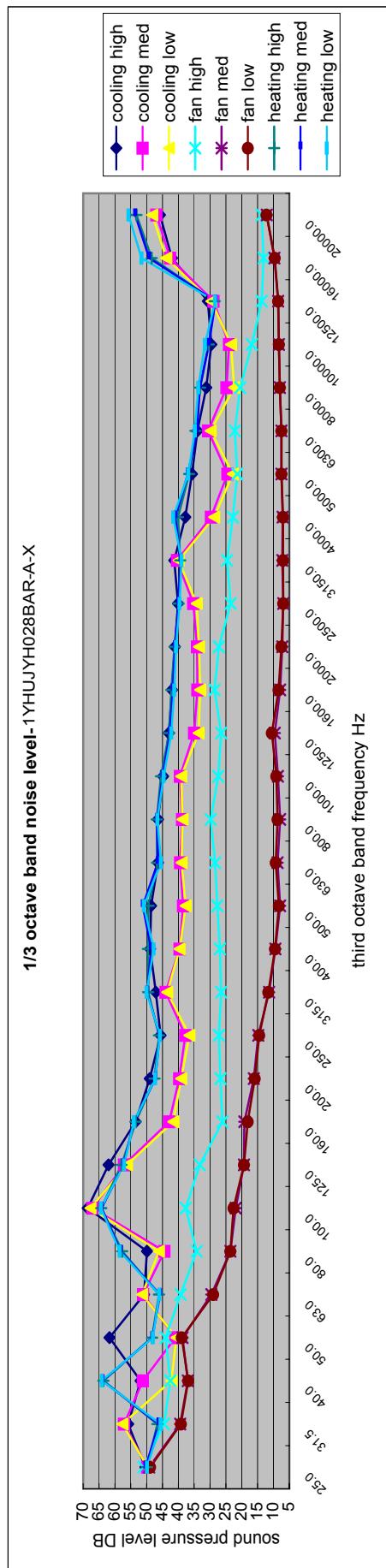
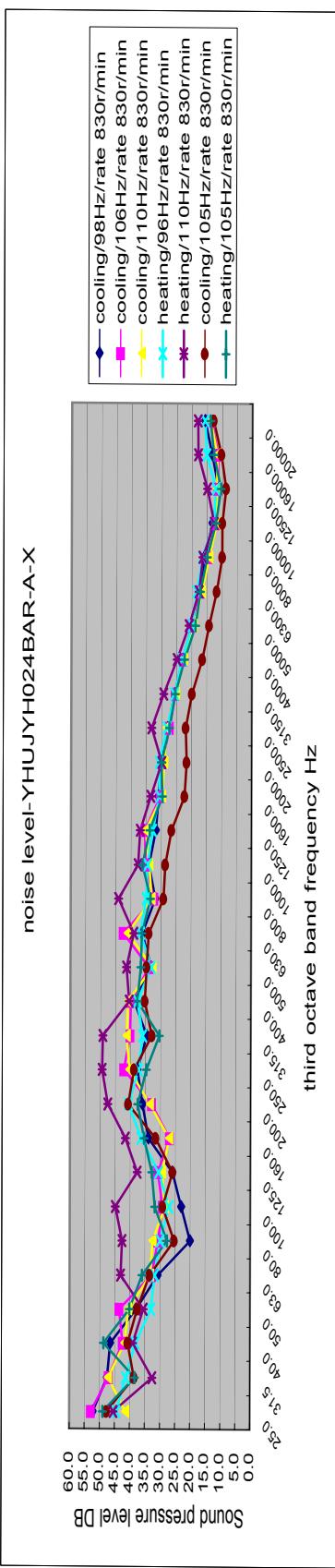


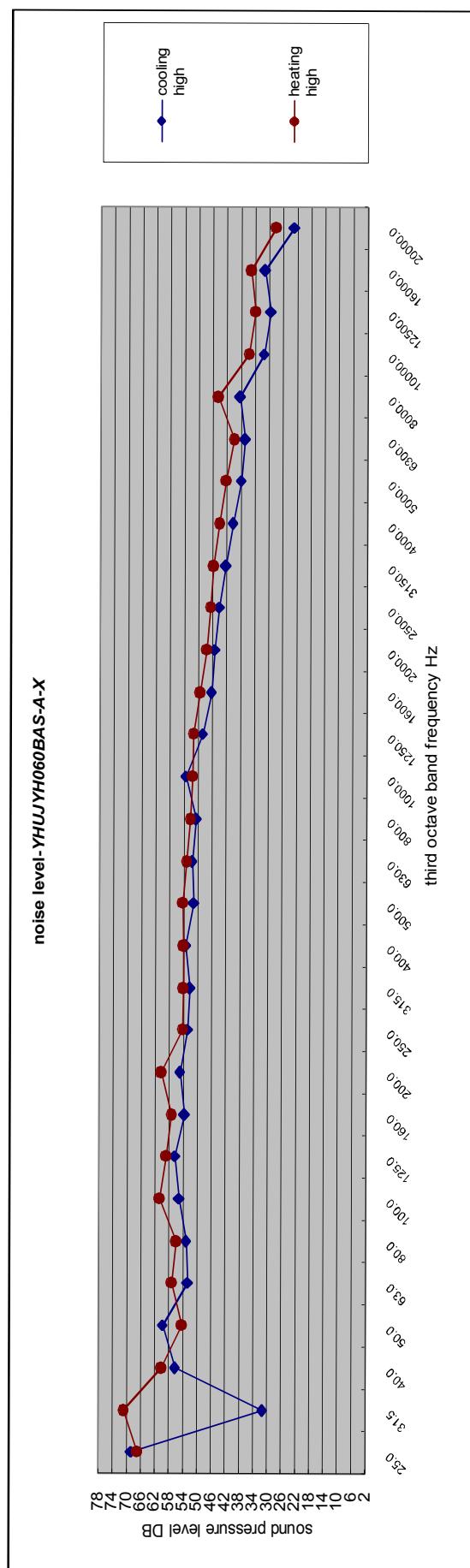
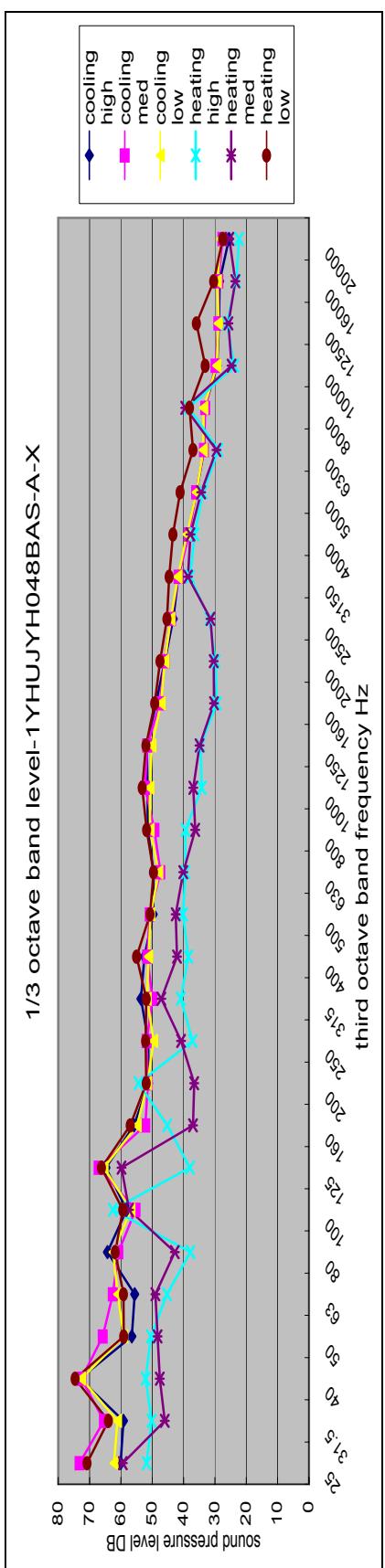
(2) Testing condition:

- a. Unit running in the nominal condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

(3) Test method

1. Set the unit: 1) the unit is placed on the rubber whose thickness is 5mm; 2) if the height between the air outlet and ground is less than 1m, block the unit up to 1m far from ground
2. Test position: After setting the unit ,the test position for the noise is 1m far from the front panel





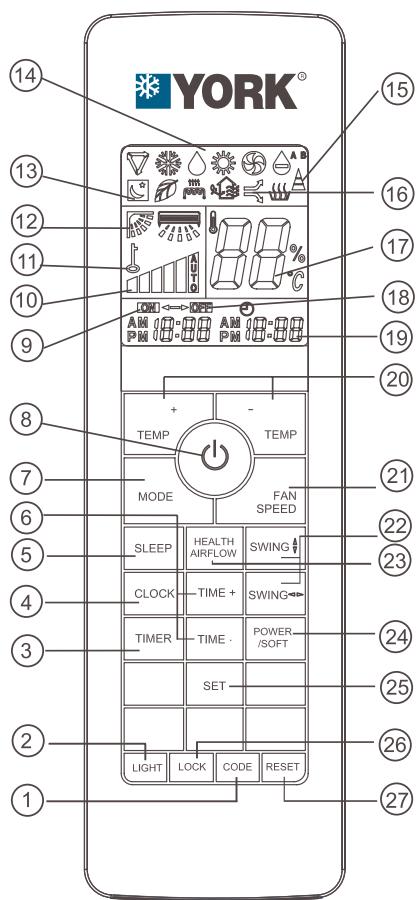
## 11. Sensor characteristic

1. Sensor characteristic			
model	name	code	characteristic
YHUJYH028/36 BAR-A-X	Outdoor ambient temperature sensor	0010450192	R25°C=10KΩ±3% B25/50=3700K±3%
	Defrost temperature sensor	0010450194	R25°C=10KΩ±3% B25/50=3700K±3%
YHUJYH048B AR-A-X	Discharge temperature sensor	0010451303	R80°C=50KΩ±3% B25/50=4450K±3%
	Suction temperature sensor	0010451307	R25=10KΩ±3%, B25/50=3700K±3%
YHUJYH060B AS-A-X	Piping temperature sensor	0010451329	R25=10KΩ±3%, B25/50=3700K±3%
	Suction temperature sensor	001A3900062E	R25=10KΩ±3%, B25/50=3700K±3%
YHUJYH024BAR-A-X	Discharge temperature sensor	001A3900056	R25=50KΩ±3%, B25/50=3700K±3%
	Defrost temperature sensor	0010450194	R25=10KΩ±3%, B25/50=3700K±3%
YHKJXH028BAR--FX YHKJXH036BAR--FX YHKJXH048BAR--FX YHKJXH060BAR--FX YHFJXH012BAM--FX YHFJXH018BAM--FX YHFJXH024BAR--FX YHFJXH028BAR--FX YHFJXH036BAR--FX YHFJXH048BAR--FX YHFJXH060BAR--FX YHDJXH012BAM--GX YHDJXH018BAM--GX YHDJXH024BAR--GX YHEJXH024BAR--GX YHEJXH028BAR--GX YHEJXH036BAR--GX YHGJXH048BAR--GX YHEJXH048BAR--GX YHGJXH060BAR--GX	Indoor ambient temperature sensor	001A3900159	R25=23KΩ±2.5%, B25/50=4200K±3%
	coil temp. sensor	001A3900006	R25=10KΩ±3%, B25/50=3700K±3%

R25=10KΩ±3%	R25=10KΩ±3%		
B25/50=3700K±3%	B25/50=3700K±3%		
T(°C)	Rnom(KΩ)	T(°C)	Rnom(KΩ)
-20	90.79	34	6.95
-19	85.72	35	6.68
-18	80.96	36	5.43
-17	76.51	37	5.6
-16	72.33	38	5.59
-15	68.41	39	5.73
-14	64.73	40	5.52
-13	61.27	41	5.32
-12	58.02	42	5.12
-11	54.97	43	4.93
-10	52.1	44	4.9
-9	49.4	45	4.58
-8	46.86	46	4.42
-7	44.46	47	4.26
-6	42.21	48	4.11
-5	40.08	49	3.97
-4	38.08	50	3.83
-3	36.19	51	3.7
-2	34.41	52	3.57
-1	32.73	53	3.45
0	31.14	54	3.33
1	29.64	55	3.22
2	28.22	56	3.11
3	26.4	57	3.11
4	25.61	58	2.9
5	24.41	59	2.81
6	23.27	60	2.72
7	22.2	61	2.63
8	21.18	62	2.54
9	20.21	63	2.49
10	19.3	64	2.38
11	18.43	65	2.3
12	17.61	66	2.23
13	16.83	67	2.16
14	16.09	68	2.09
15	15.38	69	2.03
16	14.71	70	1.96
17	14.08	71	1.9
18	13.48	72	1.85
19	12.9	73	1.79
20	12.36	74	1.73
21	11.84	75	1.68
22	11.34	76	1.63
23	10.87	77	1.58
24	10.43	78	1.54
25	10	79	1.49
26	9.59	80	1.45
27	9.21		
28	8.84		
29	8.48		
30	8.15		
31	7.83		
32	7.52		
33	7.23		

# Parts and Functions

## ■ Remote controller



### 1.CODE Button

Used to select CODE A or B which will be displayed on LCD. Please select A without special explanation.

### 2.LIGHT Button

Control the lightening and extinguishing of the indoor LED display board.

### 3.TIMER Button

### 4.CLOCK Button

### 5.SLEEP Button

### 6.TIME Button

### 7.MODE Button

### 8.ON/OFF Button

### 9.TIMER ON Display

### 10.FAN SPEED Display



### 11.LOCK Display

### 12.SWING Display

### 13.SLEEP Display

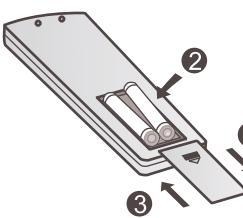
### 14.Operation MODE Display

Operation mode	AUTO	COOL	DRY	FAN	HEAT
Remote controller	AUTO	COOL	DRY	FAN	HEAT

### NOTE:

Cooling only unit do not have displays and functions related with heating. If the unit which you purchased has healthy function, follow it. If not, please ignore.

## ■ Loading of the battery



### Note:

The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.

When electronic-started type fluorescent lamp or change-over wireless telephone is installed in the type fluorescent lamp or room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.

Full display or unclear display during operation indicates the batteries have been used up.

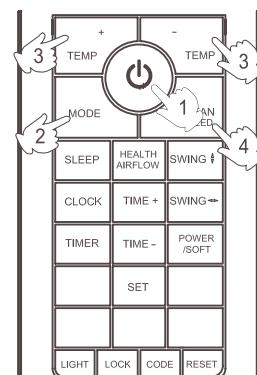
If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

### Hint:

Remove the batteries in case unit won't be in usage for a long period. If there are any display after taking-out, just need to press reset key.

## ■ Base Operation

### Remote controller



### 1. Unit start

Press ON/OFF on the remote controller, unit starts

### 2. Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Remote controller:



# Operation

## 3. Temperature setting

Press TEMP+ / TEMP- button.

TEMP+ Every time the button is pressed, temp.setting increases 1 C; if kept depressed, it will increase rapidly.

TEMP- Every time the button is pressed, temp.setting decreases 1 C; if kept depressed, it will decrease rapidly.

## 4. Fan speed selection

Press FAN SPEED button. For each press, fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed.

When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

Operation Mode	Remote Controller	Display Board	Note
AUTO	⟳	⟳	Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed.
COOL	❄️	⟳	according to room temperature.
DRY	💧	⟳	In DRY mode, when room temperature becomes lower than temp.setting + 2 C , unit will run intermittently at LOW speed regardless of FAN setting.
FAN	🌀		In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode, AUTO is not available in FAN mode. And temp.setting is disabled. In FAN mode,SLEEP operation is not available.
HEAT	☀️	⟳	

## Timer ON/OFF ON-OFF Operation

Before going to bed, you can simply press the SLEEP button and unit will operate in SLEEP mode and bring you a sound sleep.



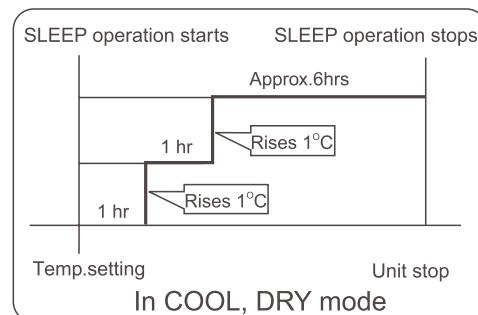
### Use of SLEEP function

After the unit starts, set the operation status, then press SLEEP button before which the clock must be adjusted and time being set.

## Operation Mode

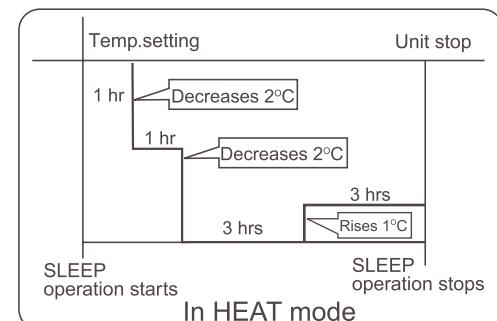
### 1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1 C higher than temp. setting. After another 1 hours, temp. rises by 1 C futher. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won be too low for your sleep.



### 2. In HEAT mode

1 hours after SLEEP mode starts, temp. will become 2 C lower than temp. setting. After another 1 hours, temp. decrease by 2 C futher. After more another 3 hours, temp. rises by 1 C futher. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won be too high for your sleep.



### 3. In AUTO mode.

The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

### 4. In FAN mode.

It has no SLEEP function.

### 5. Set the wind speed change when sleeping

If the wind speed is high or middle before setting for the sleep, set for lowing the wind speed after sleeping.  
If it is low wind, no change.

### Note

When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

# Operation

## Timer ON/OFF ON-OFF Operation

Set clock correctly before starting TIMER operation.

1.After unit starts, select your desired operation mode.

2.Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:

Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). " **ON** " or " **OFF** " will flash.

3.Press TIME+/TIME- button to set time.

It can be adjusted within 24 hours .

4.After setting correct time, press SET button to confirm " **ON** " or " **OFF** " on the remote controller stops flashing.

5.Cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

### Hints:

After replacing batteries or a power failure happens, time setting should be reset.

Remote controller possesses memory function. When use TIMER mode next time, just press SET button after mode selecting if time setting is the same as the previous one.

According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

## Air Flow Direction Adjustment

### 1.Status display of air flow

COOL/DRY:



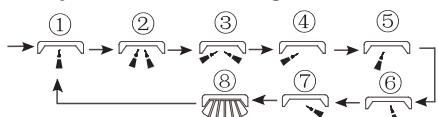
HEAT:



### 2.Left and right air flow adjustment

(available only for convertible unit)

Press button **SWING**. Enter left and right air flow adjustment to adjust the air flow angle.



Note:Position ② ③are null for this model.

## Healthy airflow Operation

1.Press ON/OFF to starting

Setting the comfort work conditions.

2.The setting of healthy airflow function

1). Press the button of healthy airflow, appears on the display. Horizontal airflow sending. Avoid the airflow blows direct to the body.

2). Press the button of healthy airflow again, appears on the display. Downward airflow sending. Avoid the airflow blows direct to the body.

3. The cancel of the healthy airflow function

Press the button of healthy airflow again, the unit goes on working under the condition before the setting of healthy airflow function.

Notice:

Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:

1.After setting the healthy airflow function, the position grill is fixed.

2.In heating, it is better to select the mode.

3.In cooling, it is better to select the mode.

4.In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille.

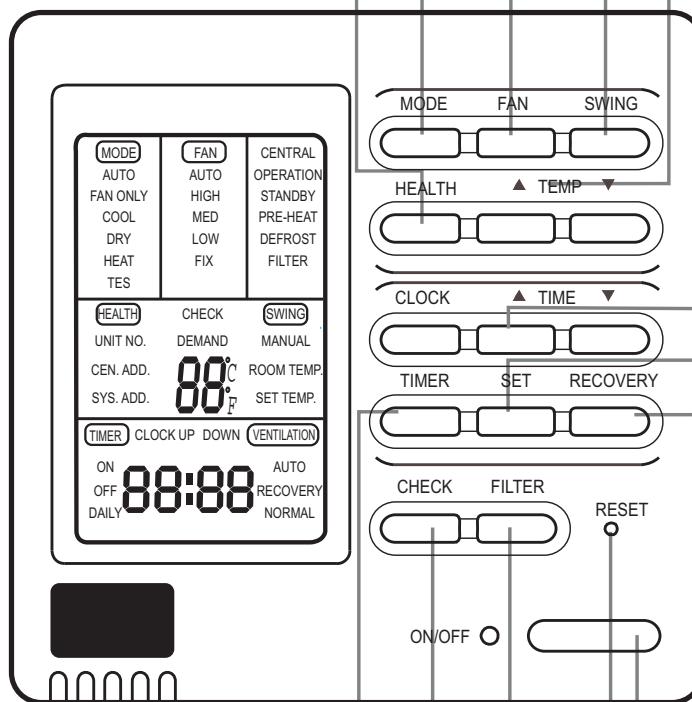
## Wired controller

### Mode switch

Choose running mode

### Health switch

Used to control oxygen function and negative ion



### Timing switch

It is used for choosing timing running

### Self-inspection switch

It is used for inspection service

### Filter reset

After cleaning air inlet and filter, press this switch. The unit begins to run

### Fan speed switch

Change wind speed

### Swing switch

Open and close air flap

### TEMP switch

Used for changing set temperature

### Time switch

It is used to regulate setting time.

### Clock, timing and address setting

### Air change switch

It is used to open and close air change function. The mode is as follows:

No display-air change (automatic)-air change (RECOVERY)-air change (NORMAL)

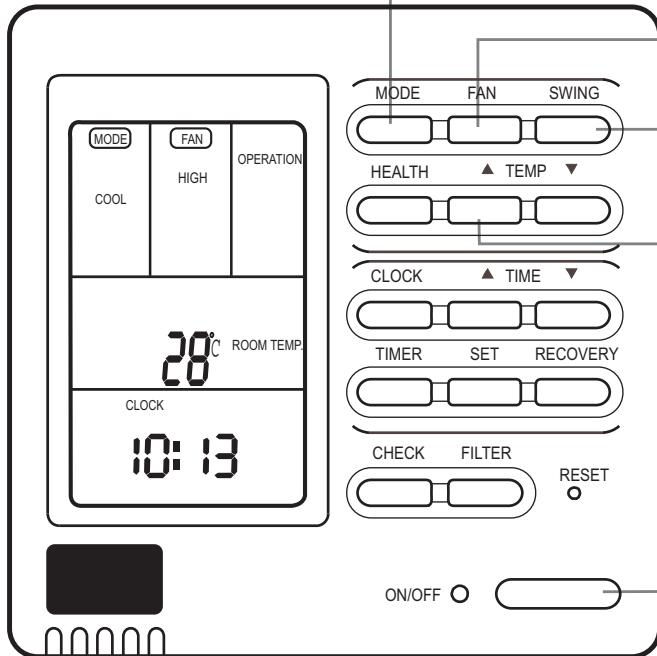
### ON/OFF switch

Do on and off function. The unit is on when pressing it; and is off when pressing it again (needn't to open front cover)

### Reset key

When in abnormal state, push the reset key with a spike, which may return the unit to normal

## ON/OFF operation



- 2 Press ON/OFF switch on line controller directly
- 4 The line controller displays the running state in the latest time (timing and swing state may not be displayed).
1. Press "ON/OFF" switch.
- 5 The air conditioner starts operating, and the light on the wired controller is on.
3. Choose operation mode.
- Press "mode"switch to change to "AUTO"---"FAN ONLY"---"COOL"---"DRY"---"HEAT".
- 3.Press "TEMP" switch
- Change set temperature:press TEMP▲or TEMP▼ every time, [SET] will display, and set temperature will increase/reduce 1°C
- 4.Press "FAN SPEED" switch
- FAN ONLY Operation:  
Press "FAN SPEED" switch to change to "HIGH"--"MED"--"LOW"--"HIGH"

In AUTO, COOL, DRY, HEAT Operation:  
Press "FAN SPEED" switch to change to "AUTO"--"HIGH"--"MED"--"LOW"--"AUTO"

- 5.Press "swing" switch on the line controller to swing the wind screen.

- 6.Press "ON/OFF"switch, off.

The light on the line controller is off.

### Note

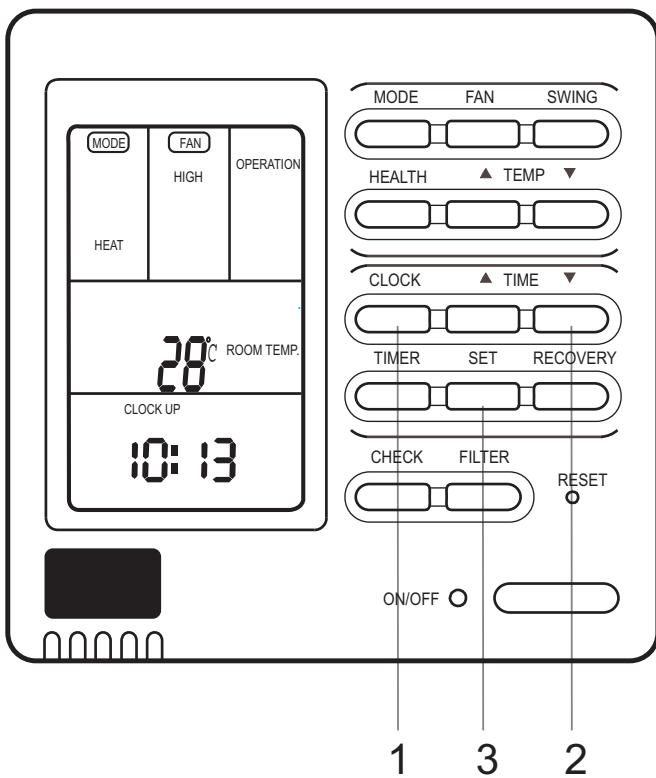
Several seconds after the operation of the line controller, the setting of the unit will change.

### Remarks

- Avoid pressing "ON/OFF" switch frequently.
- Do not press line controller or switches by sharp objects.
- The temperature is on the basis of the setting value. The wind temperature may not reach the setting value because of the outer air conditioner and system protection.
- When the wired controller is power on, the screen fully displays it for two seconds. and clock zone "8888"- "888" - "88" - "8" flicker for 30 seconds. All the switches are invalid at the time.

## Present time setting

- The timing is based on the real time. Thus, the real time should be regulated in advance.
- The clock regulation steps are as follows:



### 1. Press "CLOCK" switch

"CLOCK" flickers, and the time displayed is the real time.

### 2. Press "▲" and "▼" to regulate the time.

The time increases a minute each time you press "▲" switch.  
The time decreases a minute each time you press "▼" switch.

### 3. Press "setting" switch. The setting is achieved.

#### Notes

- If not in timing, the screen displays the real time.
- If in timing, the screen displays the timing time.
- If you want to know the real time, go to the first step.

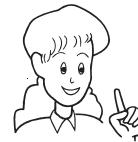
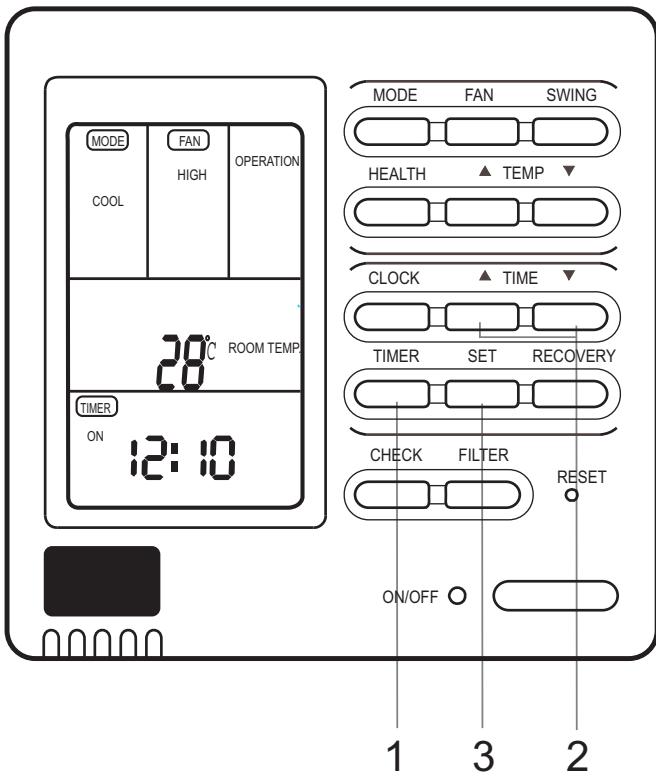
## Setting of power failure compensation function

When SW1-6 on PCB of wire controller is OFF, it will be in power failure compensation. If the SW1-6 is ON, it has no compensation function.

When the power is on after blackout, the unit will return to the former state if compensation function is set. Otherwise, it will stop. When restarting the unit, press "ON/OFF" switch on wired controller.

## Timing setting

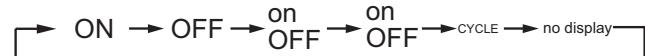
- OFF timing: when a set time has elapsed, the unit stops running.
- ON timing: when a set time has elapsed, the unit starts.



Press "ON/OFF"switch firstly, and set up operation mode. Please regulate the clock in advance before using the timing function.

### 1.Press "TIME" switch.

The display changes with the following sequence:



### 2.Set up "TIMER"

When timing ON or timing OFF flickers, press "▲" or "▼" to regulate the time

Press "▲" or "▼" set up ON/OFF time.

The setting time increases ten minutes each time you press "▲" switch.

The setting time decreases ten minutes each time you press "▼" switch.

When setting timing ON and timing OFF at the same time, press "timing" switch to change the setting item.

### 3.Time setting is achieved. Press "setting" switch.

### Cancel timing

If you want to change the timing mode to normal operation, press "timing" until there is no timing display. When the timing is invalid, the mode is in normal operation.

## parts of wired controller explanation :

- 1.The unit starts or stops at the setting time. Meanwhile, it displays the timing time.
- 2."ON Timing, OFF timing and circulation"means that the unit is on and off at the setting time everyday.

## Notes

- The shorter setting time will be carried out firstly.
- If the ON timing and OFF timing are the same, the setting is invalid.
- Even in timing condition, you may start or close the unit through pressing "ON/OFF" switch.

### Query indoor malfunction history:

In the state of power on or power off, press [CHECK] button, enter the malfunction-querying mode of all indoor units in the group. Then [CHECK] and [UNIT NO.] will display, and the actual indoor numbers will be displayed in some sequence (unit number is in decimals). At the same time, in the time region, there will be the current malfunction and the latest time malfunction, the displaying format is [XX:YY], in which XX stands for the current malfunction, if normal, it will display "--"; YY stands for the latest time malfunction. The failure code of every unit will display for 3 seconds. After the failure codes of all indoor units in the whole group are displayed, the mode will quit automatically.

### How to change the function switches?

No.	Type	State of switch	Function description
SW1-1	Select the master or the slave controller	ON	set as the slave controller
		OFF	set as the master controller
SW1-2	Select the controller mode	ON	standard controller
		OFF	air handler controller
SW1-3	Room temperature display option	ON	visible room temperature
		OFF	invisible room temperature
SW1-4	26° lock	ON	Unavailable 26° lock
		OFF	available 26° lock
SW1-5	Temperature sensor position option	ON	Sensor of the controller
		OFF	Sensor in the unit
SW1-6	Auto restart	ON	unavailable
		OFF	available
SW1-7	Factory Setting	ON	default setting
SW1-8	Factory Setting	OFF	default setting

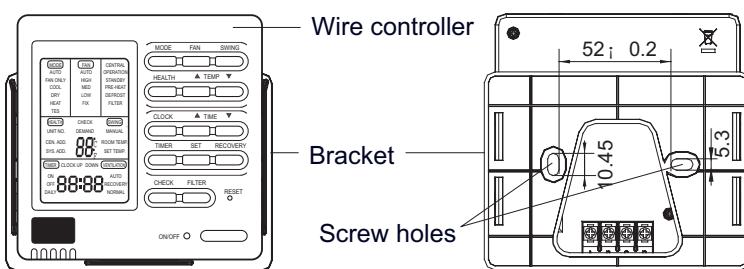
#### Notes

1. Switches or jumper wire must be adjusted when the wire controller is powered off. If the wire controller is powered on, the above operations will be invalid.
2. Function difference between master wire controller and slave one:

Contrastive items	Master wire controller	Slave wire controller
Function	All of functions	Only with below functions: ON/OFF, MODE, FAN SPEED, SET TEMP., SWING

# Installation Manual For Wire Controller

## 1. Take down wire controller from the holder



## 3. Wiring instruction

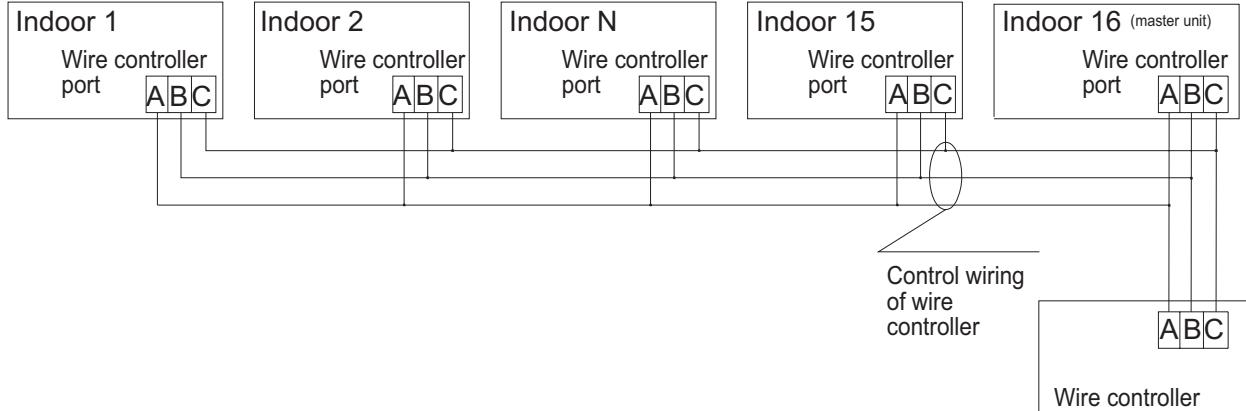
Use shielded wire between indoor and wire controller. And be earthed on one side, or the unit will not work normally because of interference.

**Note:** Confirm the terminal connection firmly, and do not get in touch with shielded wire.

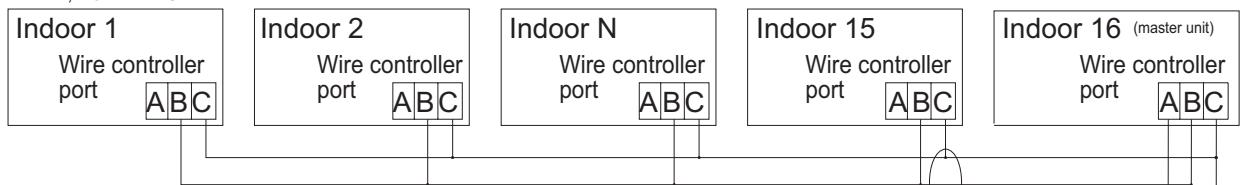
## 4. Place wire controller on the holder, and pay attention not to pressing any wires.

## 5. Wiring connections of wire controller:

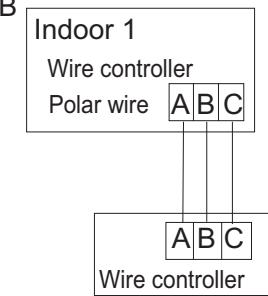
### A TYPE 1, FOR AD\*SS1ERA



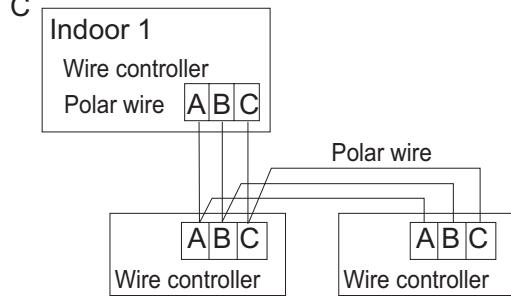
### TYPE 2, FOR AD\*LS1ERA



### B



### C



## 2. Install the controller holder

According to the position of 2 screw holes on the holder, drill 2 holes on the wall, and strike the wood stopper to the holes respectively.

Then align the 2 screw holes of wired controller holder to the wood stopper, fix the holder on the wall with wood screw.

**Note:** Try a wall as flat as possible for installation.

Don't use excessive force to tighten screws, otherwise, the holder will be damaged.

There are three methods to connection wire controller and the indoor units:

A. One wired controller can control max. up to 16 sets of indoor units, and 3 pieces of polar wire must connect the wire controller and the master unit (the indoor unit connected with wire controller directly), the others connect with the master unit through 2 pieces of polar wire(3 pieces for model AD\*SS1ERA, and the bridge CN22 CN23 on slave units PCB should be cut off).

B. One wire controller controls one indoor unit, and the indoor unit connects with the wire controller through 3 pieces of polar wire.

C. Two wired controllers control one indoor unit. The wire controller connected with indoor unit is called master one, the other is called slave one. Master wire controller and indoor unit; master and slave wire controllers are all connected through 3 pieces of polar wire.

#### **6. Communication wiring:**

The wire controller is equipped with special communication wiring in the accessories. 3-core terminal (1-white 2-yellow 3-red) is connected with the terminal A, B, C of wire controller respectively.

The communication wiring is 5 meter long; if the actual length is more than it, please distribute wiring according to below table:

Communication wiring length(m)	Dimensions of wiring
< 100	0.3mm <sup>2</sup> x3-core shielded wire
≥100 and <200	0.5mm <sup>2</sup> x3-core shielded wire
≥200 and <300	0.75mm <sup>2</sup> x3-core shielded wire
≥300 and <400	1.25mm <sup>2</sup> x3-core shielded wire
≥ 400 and <600	2mm <sup>2</sup> x3-core shielded wire

\*One side of the shielded sheet of communication wire must be earthed.